FOURTH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

SOUTH CAROLINA

FOR THE

Fiscal Year Ending October 31, 1883.

TO THE LEGISLATURE OF SOUTH CAROLINA.

COLUMBIA, S. C.
CHARLES A. CALVO, JR., STATE PRINTER.
1883.

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It will be seen that this Report of the State Board of Health appears in attenuated form, as compared with the previous Reports. This is accounted for by the fact that heretofore much space has been given to papers relating to sanitary matters and preventive medicine, contributed at the earnest solicitation of the Board by scientific gentlemen (sometimes from beyond the limits of the State) distinguished as close observers and students of hygiene and practical sanitation; the object being to invest the publication with an interest and value to the citizen beyond what a mere report of the acts of the Board and a health review for the fiscal year can possess. But objections having arisen in some quarters, and from those whose opinions are entitled to respect, to this mode of circulating what cannot but be deemed valuable information, and which is very generally adopted by the Boards of Health of other States, the Executive Committee has decided, in deference to the views of those who urge the objection, and who would prefer to have the Report wear less "the appearance of a medical journal," to publish this year only such papers as have been supplied by the members of the Committee and by the Sub and Local Boards of Health in their annual reports.

SECRETARY.

LETTER OF TRANSMITTAL.

To His Excellency HUGH S. THOMPSON, *Governor of South Carolina.*

SIR: I have the honor to present herewith the Fourth Annual Report of the Executive Committee of the State Board of Health of South Carolina, and to request that you will transmit the same to the honorable the General Assembly.

Very respectfully,

Your obedient servant,

HENRY D. FRASER, M. D.,

Secretary.

ANNUAL REPORT.

By Act of the General Assembly, approved December 23d, 1878, the South Carolina Medical Association is the State Board of Health.

Executive Committee of State Board of Health.

F. F. GARY, M. D.....Abbeville.
P. A. WILHITE, M. D.....Anderson.
J. FORD PRIOLEAU, M. D.....Charleston.
T. GRANGE SIMONS, M. D.....Charleston.
H. D. FRASER, M. D.....Charleston.
J. R. BRATTON, M. D.....Yorkville.
HON. C. RICHARDSON MILES, Attorney General, (*ex officio.*)
HON. W. E. STONEY, Comptroller General, (*ex officio.*)
F. F. GARY, M. D., Chairman Executive Committee.
H. D. FRASER, M. D., Secretary.

Standing Committees.

On Ordinances and Sanitary Code.—T. G. Simons, M. D., J. R. Bratton, M. D., and Attorney General C. R. Miles.

On Medical Topography.—F. F Gary, M. D., J. R. Bratton, M. D., and Comptroller General W. E. Stoney.

On Endemic and Epidemic Diseases.—J. F. Prioleau, M. D., C. R. Taber, M. D., and H. D. Fraser, M. D.

On Quarantine.—T. G. Simons, M. D., Attorney General C. R. Miles and C. R. Taber, M. D.

On Registration of Vital Statistics.—H. D. Fraser, M. D., Comptroller General W. E. Stoney and P. A. Wilhite, M. D.

On Finance.—H. D. Fraser, M. D., Comptroller General W. E. Stoney and T. G. Simons, M. D.

On Adulteration of Food and Drink.—J. R. Bratton, M. D., T G. Simons, M. D., and F. F. Gary, M. D.

On Sale of Drugs and Medicines.—P. A. Wilhite, M. D., C. R. Taber, M. D., and F. F. Gary, M. D.

On Sanitary Regulation of Schools.—C. R. Taber, M. D., H. D. Fraser, M. D., and P. A. Wilhite, M. D.

On Sanitary Condition of State Penal and Charitable Institutions.—J. Ford Prioleau, M. D., Attorney General C. R. Miles and Comptroller General W. E. Stoney.

Members of Sub-Boards of Health.

ABBEVILLE COUNTY.

Abbeville.—Drs. Edwin Parker and E. H. McBride, and T. P. Quarles, Esq.

Cokesbury.—Drs. F. F. Gary and B. C. Hart, and Mr. L. Dawson.

Due West.—Drs. J. L. Miller and E. H. Edwards, and Professor Wm. Hood.

Lowndesville.—Drs. A. J. Speed and O. R. Horton, and Jas. M. Latimer, Jr., Esq.

AIKEN COUNTY.

Aiken.—Drs. W. H. Geddings and T. G. Croft, and J. B. Henderson, Esq.

Langley.—Drs. J. M. Woodward and J. L. Lee, and H. W. Jordan, Esq.

ANDERSON COUNTY.

Anderson.—Drs. W. H. Nardin and M. L. Sharpe, and John E. Breazeale, Esq.

Pendleton.—Drs. Thomas F. Pickens and Paul H. E. Sloan, and T. S. Crayton, Esq.

Williamston.—Drs. B. F. Brown and H. E. Epting, and C. E. Horton, Esq.

BARNWELL COUNTY.

Bamberg.—Drs. L. A. Wright and J. F. Baggot, and J. S. Bamberg, Esq.

Barnwell.—Drs. A. Patterson and J. J. O'Bannon, and A. P. Manville, Esq.

Blackville.—Drs. L. C. Stephens and P. F. Stokes, and L. T. Izlar, Esq.

BEAUFORT COUNTY.

Beaufort.—H. M. Stuart, M. D., Chairman; George Waterhouse, Esq., William A. Lockwood, Esq., A. J. Bamfield, Esq., R. Rutledge, Esq.

Port Royal.—John Rich, Esq., Chairman; J. D. Manett, Esq., George S. Harrison, Esq., J. H. Milton, Esq., J. A. Torrent, Esq.

CHARLESTON COUNTY.

Charleston (City).—John Hanckel, Esq., Chairman; Middleton Michel, M. D., F. Peyre Porcher, M. D., Allard Memminger, M. D., G. E. Manigault, M. D., William Ufferhardt, Esq., William Thayer, Esq., Joseph L. Tobias, Esq., C. P. Aimar, Ph. D., R. M. Marshall, Esq., Paul C. Trenholm, Esq.; H. B. Horlbeck, M. D., Secretary of Board.

Moultrieville.—Drs. Alfred Raoul and ——, and John Commins, Esq.

Mount Pleasant.—Drs. —— and John G. DuPre, and Frederick Horlbeck, Esq.

Summerville.—Dr. Benj. Rhett and ——, and ——.

CHESTER COUNTY.

Chester.—Drs. J. A. Watson and D. Lyle, and J. L. Agurs, Esq.

CHESTERFIELD COUNTY.

Cheraw.—Drs. C. Kollock and ——, and H. D. Malloy, Esq.

CLARENDON COUNTY.

Manning.—Drs. S. C. C. Richardson and John J. Ingram, and G. Allen Huggins, Esq.

Summerton.—Drs. B. M. Badger and J. L. Burgess, and P. G. Benbow, Esq.

COLLETON COUNTY.

Walterboro.—Drs. Charles Witsell and W. H. Miller, and John D. Edwards, Esq.

DARLINGTON COUNTY.

Darlington.—Drs. B. C. Norment and W. A. Player, and J. F. Early, Esq.

Florence.—Drs. J. W. King and James Evans, and W. J. Norris, Esq.

EDGEFIELD COUNTY.

Edgefield.—Drs. J. W. Hill and George W. Wise, and W. H. Brunson, Esq.

FAIRFIELD COUNTY.

Winnsboro.—Drs. T. T. Robertson and R. B. Hanahan, and G. H. McMaster, Esq.

GEORGETOWN COUNTY.

Georgetown.—Drs. T. P. Bailey and L. L. Williams, and W. O. Bourke, Esq.

GREENVILLE COUNTY.

Greenville.—Drs. J. H. Dorrah and J. H Maxwell, and Thomas C. Gower, Esq.

HAMPTON COUNTY.

HORRY COUNTY.

Conwayboro.—Drs. Evan Norton and J. H. Grant, and Thomas W. Beaty, Esq.

KERSHAW COUNTY.

Camden.—Drs. A. A. Moore and ———, and ———.

LANCASTER COUNTY.

Lancaster.—Drs. J. H. Foster and J. F. Mackey, and N. B. Chafee, Esq.

LAURENS COUNTY.

Laurensville.—Drs. Irby Dunklin and Jno. A. Barksdale, and C. M. Miller, Esq.

LEXINGTON COUNTY.

Lexington.—Drs. C. E. Leaphart and J. L. Shuler, and Walter Drafts, Esq.

MARION COUNTY.

Marion.—Drs. J. L. Mullins and D. S. Price, and W. B. McMillan, Esq.

MARLBORO COUNTY.

Bennettsville.—Drs. J. F. Jennings and J. L. Jordan, and P. L. Breeden, Esq.

NEWBERRY COUNTY.

Newberry.—Drs. James McIntosh and O. B. Mayer, Jr., and R. McCaughrin, Esq.

Prosperity.—Drs. A. F. Landford and W. T. McFall, and W. A. Moseley, Esq.

OCONEE COUNTY.

Walhalla.—Drs. L. B. Johnson and B. S. James, and C. L. Reid, Esq.

ORANGEBURG COUNTY.

Orangeburg.—Drs. A. S. Hydrick and M. G. Salley, and J. J. Street, Esq.

PICKENS COUNTY.

Central.—Drs. S. W. Clayton and J. M. Folger, and John R. Williams, Esq.

RICHLAND COUNTY.

Columbia.—Colonel John T. Sloan, Chairman; L. K. Philpot, M. D., E. H. Heinitsh, M. D., R. Tozer, Esq., J. C. Dial, Esq., E. W. Seibels, Esq., N. W. Trump, Esq., George K. Wright, Esq., George W. Lever, Esq., Pressley Brown, Esq., ——— ———, ——— ———; Richard Jones, City Clerk, Secretary.

SPARTANBURG COUNTY.

Spartanburg.—Drs. W. T. Russel and T. E. Nott, and J. J. Boyd, Esq.

SUMTER COUNTY.

Sumter.—Drs. John S. Hughson and J. C. Haynesworth, and Colonel J. H. Earle.

UNION COUNTY.

Union.—Drs. Henry F. Beaty and Theo. Munro, and M. F. Farr, Esq.

WILLIAMSBURG COUNTY.

Kingstree.—Drs. ———, ———, ——— and ———.

YORK COUNTY.

Yorkville.—Drs. J. R. Bratton and A. J. Barron, and Colonel Wm. McCorkle.

Rock Hill.—Drs. T. A. Crawford and ———, and Captain J. M. Ivy.

Meteorological Stations and Observers.

Aiken.—W. H. Geddings, M. D., Observer.

Darlington.———

Spartanburg.———

Due West.—Professor Wm. Hood, Observer.

Report of the Secretary of the Executive Committee, State Board of Health, at the Regular Quarterly Meeting, October 9th, 1883.

In presenting my quarterly report at this the last meeting of the fiscal year, I cannot but congratulate the State Board of Health that in their Annual Report to the Legislature they will have it in their power to present so satisfactory a statement as to the health of the citizens of this Commonwealth during the past year.

No visitations of widespread and desolating epidemics have occurred to scourge and decimate the people and mar our commercial prosperity. Yellow fever, by vigilance, sanitary policing and close coast quarantine, has found no footing along our seaboard. Smallpox, in its approaches, has given way before effective vaccination practiced generally throughout the State, whilst cholera, the very mention of the existence of which in some of the cities of the East caused a flutter of excitement throughout the civilized world, has, through the application of modern science, been remanded to its home in the jungles of India. And whilst in some sections of our State there have been returns of some of the usual periodical and local diseases, manifesting most of their well known symptoms, they seem, as a general thing, not to have been marked by the virulence and fatality which have characterized them in previous years. Health has been the rule; disease the exception.

Malaria will exist so long as the intense heat of our Summers meets a congenial moisture supplied by a saturated soil; and whilst no known human agency can modify or divert the one, science, labor and capital combined have it in their power to so eliminate the other as to prevent the baneful coalition of the two; and the incipient attention to a systematic and thorough drainage of large sections of our country, though now in its infancy and practiced in almost infinitessimal proportions to what it should be, in its results gives evidence of a potency which, when it shall have been applied generally, will not only add immensely to the wealth of the State, but elevate and redeem it in point of health.

Natural causes have, without doubt, favored a more healthy condition of the country the past season, and although the heat of the Summer, if not so intense, was more protracted than for several years, still a drought, lasting many weeks, existed throughout the middle and upper Counties of the State, and in less degree along the sea coast. Atmospheric electricity in unusual amount added its purifying influence, and cyclones and tornadoes have swept the country of the West, and, with

less severity, have passed over our State, ravaging fields and tearing the growing crops, but sweeping away malaria and miasm.

But, with these natural agencies at work, is there not another element—a human agency—in operation, inspired by the teachings of science, gradually working its way and infusing its leaven into the minds of even the humblest toiler for bread,—that tells him that there is a possibility of his obtaining a greater measure of health for himself and his family by the observance of certain laws which he must apply to himself and his surroundings, and that the disregard of them will produce sickness and possibly his death? Is he not beginning to heed such promptings? Are not the human custodians of health studying this science with increasing eagerness, applying its doctrines and disseminating an interest in its application? Are not the law-makers of the land slowly but surely falling into line, as is evinced by the establishment under their auspices of Health Boards throughout the country, and the appropriations made by them for their support and the delegation of power for their conduct? and has not the average tenure of human life been greatly increased, as is proved by the evidence of vital statistics wherever they are in operation?

Its progress may have been slow. Carpers and cavillers have surrounded it and essayed to throttle and destroy it; its adherents have been reviled and abused, and its practices stigmatized as visionary and vain; but so long as there is truth in the maxim that "self-preservation is the first law of nature," so long will it survive and prosper. Great is utility, great is truth, and they must prevail.

All honor, then, to the new, the noble, science that teaches, not how to cure disease, but how to prevent disease—the science of sanitation!

Only four meetings of the Executive Committee, those prescribed by law, have been held during the past year, and an outline abstract of the proceedings of these meetings is here presented:

At the meeting held in Charleston, January 4th, the resignation of our honored Chairman, Dr. B. W. Taylor of Columbia, was tendered, and reluctantly accepted, and by resolution the thanks of the Committee were conveyed to him for services efficiently and faithfully performed.

The discussion of the Bill now before the Judiciary Committee of the Legislature entitled "A Bill for establishing Boards of Health and for the better protection of the public health" was deferred until the October meeting.

The Chairman of the Quarantine Committee reported that, in accordance with the request of the Executive Committee, he had communicated with the Boards of Health of the other States interested in procuring from the government the continuance of the national quarantine station at Blackbeard's Island, Sapelo Sound.

The Chairman of the Quarantine Committee was authorized and requested to have constructed a residence and outbuildings for the use of the Quarantine Officer at St. Helena Station, to be paid for out of the quarantine fees.

Dr. F. F. Gary of Abbeville was elected Chairman, *vice* Dr. Taylor, resigned.

Dr. C. R. Taber of Orangeburg County was elected to fill Dr. Taylor's place on the Executive Committee.

Quarantine Officers for the various stations were elected for the ensuing year.

At the meeting held April 5th in Charleston Dr. J. A. Watson's letter requesting information as regards the examination and licensing of physicians was read and acted on.

The Chairman announced the Standing Committees as revised and altered by him.

A resolution was offered to abolish the Committee on the Sale of Drugs and Medicines, and that on the Adulteration of Food and Drink.

A special Committee was appointed to consider the subject and report on it.

A discussion was begun upon the subject of the work of the Committee on the Sanitary Condition of the State Penal and Charitable Institutions, especially that portion of it bearing upon the inspection of the condition of the convicts farmed out to companies and corporations and individuals, and continued at a subsequent meeting.

The Chairman of the Quarantine Committee stated that legal objections to the erection of the buildings ordered to be put up at the St. Helena Station had presented themselves, preventing his carrying out the instruction of the Committee in this respect, and that he had been sustained by the opinion of the Attorney General.

Whereupon the subject of a purchase of a site for said buildings was discussed and referred to the Governor, with the request that he recommend the said purchase be effected by the State.

His action as regards the examination of vessels from Baltimore, in consequence of the existence of smallpox at that port, was approved by the Executive Committee.

A special Committee, consisting of three members, was appointed to consider and report on the whole subject of the next General Report to the Legislature.

Letter read from Professor Wm. Hood of Erskine College, Due West, accepting the position of Meteorological Observer for the Board at that point, in place of Professor Bittle, at Newberry, resigned.

At the meeting held in Columbia July 6th, the report of a Committee appointed at last meeting to consider the expediency of doing away with the Standing Committees on Sale of Drugs and Medicines and that on the Adulteration of Food and Drink was read, recommending that those Standing Committees be not abolished, but that they be not required to prepare and present regular report. Report received and adopted.

Report of the Committee on State Penal and Charitable Institutions presented.

The Chairman stated that, in view of the importance of the subject of the inspection of convicts not in the Penitentiary but hired out to companies or individuals, he had requested the Attorney General to examine the question and advise with the Committee.

The Attorney General, after an examination of the law, stated that he did not think that "convict camps" were to be considered as "institutions provided as State charities or supported at the public expense," (that being the wording of the Act,) and that therefore they were not embraced in the Section having special reference to the duties of the Board in making their inspections.

On motion, a Committee of three, of which the Attorney General is one, was appointed to report upon the whole subject matter of the duties of the State Board of Health in relation to the penal and charitable institutions of the State. To the same Committee was referred the question whether the inspection of the public institutions required to be made by the State Board of Health through its Executive Committee can be made through the Sub-Boards of Health. And,

On motion, that a Committee be appointed to examine and inquire into the safety of all public buildings used for public gatherings and entertainments, and as to the sufficiency of the ways and modes of ingress and egress to and from such buildings. It was decided to refer the subject to the same Committee.

The Committee on Quarantine presented their report, which was received as information.

A Committee of three members was appointed to confer with the State Chemist with the view of obtaining from him an estimate of the cost of analyzing some of the principal patent medicines now in general use in this State.

The report of the Committee appointed at the last meeting to consider the whole subject of the next General Report to the Legislature was presented. The Committee took the ground that for the present, in consequence of the inefficiency of the funds of the Board and for other reasons, it was inadvisable to publish in the Report essays relating to general matters of public health, but advise that the means of the Board be concentrated on direct and tangible matters, such as would commend

itself to the intelligence of the General Assembly, and would not give to the Report the appearance of a medical journal.

The report of the Committee was received and the suggestion adopted.

The provisional appointments made of members to compose the Sub-Board of Health of the town of Chester were confirmed at the meeting held October 9th.

The Secretary was empowered to purchase a copy of the "Civil Engineers' Hand Book" for the office of the Board.

The report of the Special Committee appointed to consider and report upon the whole subject matter of the duties of the State Board of Health in relation to the penal and charitable institutions of the State was presented, the report being supplemented by a letter from the Attorney General embodying his legal opinion in reference to said duties.

With regard to the duty of the Committee in reporting upon the inspection of the modes and efficiency of means of ingress and egress to and from public buildings and places of public entertainment, the Committee requested further time, which was granted.

The Standing Committee on Medical Topography presented their report through its Chairman. The report was received and ordered for publication in the Annual Report to the Legislature.

The Committee on Endemic and Epidemic Diseases presented their report, which was received and ordered to be published.

The Chairman of the Standing Committee on Quarantine presented the report of the Committee, which was received and ordered for publication, and the following resolutions bearing upon the matter contained in said report were presented and adopted by the Committee:

Resolved, That so much of the report of the Committee on Quarantine as relates to the reduction of the fees now fixed for the inspection and fumigation and disinfection of vessels at quarantine, and to the purchase of Buzzard's Island for quarantine purposes, and to the appropriation for Port Royal, be made the subject of a special memorial from this Committee to the General Assembly.

Resolved, That the Chairman of this Committee and the Chairman of the Committee on Quarantine be requested to prepare such memorial and to take the necessary steps for the proper presentation of the said memorial.

Resolved, That so much of the report as refers to the possible conflict between the instructions given to Custom House inspectors and the State Quarantine regulations be recommitted to the Committee on Quarantine, with the request that they continue their correspondence and other efforts with the United States authorities to prevent such conflict.

Application of Dr. Robert Lebby, Quarantine Officer at Charleston, for increase of salary, addressed to Board of Health of Charleston, and endorsed by it and referred to Executive Committee State Board of Health, read and approved.

The discussion of the Bill entitled "A Bill to establish Boards of Health and for the better protection of the public health," and which had been sent to the General Assembly at its last session by this Committee and is now before the Judiciary Committee of the House and amended by it, was taken up in accordance of resolution adopted at meeting in April.

The Bill as amended by the Judiciary Committee was read, and, on motion, was concurred in by this Committee, and the Chairman was requested to urge its passage in the General Assembly.

The report was read of special Committee appointed at the last meeting to confer with the Chemist of the State Agricultural Department with the view of obtaining from him an estimate of cost of making an analysis of certain patent medicines now in general use in this State.

Dr. Chazal's reply to the Committee was also presented in this. His regrets were expressed that in consequence of the wide range of tests through which such examination would necessarily have to be carried in conducting such analysis, that it would be impossible for him to make an approximation as to the cost of the work, and the Committee requested further time, which was granted.

The Chairman of the Standing Committee on the Regulation of Schools presented the report of the Committee, which was received and referred for publication in the Annual Report.

The report of the Standing Committee on State Penal and Charitable Institutions was also presented by its Chairman and was received and ordered to be published.

On motion it was decided to send a delegate to represent the State Board of Health at the annual meeting of the American Public Health Association, to be held at Detroit, Michigan, November 13th–15th.

In the hope of obtaining full information of the sanitary condition of all the Counties, the Secretary sent, in August, to all of the Sub and Local Boards the following Circular:

OFFICE STATE BOARD OF HEALTH,
CHARLESTON, August, 1883.

To the Chairman of the ———— *Board of Health of* ———— .

DEAR SIR: At the quarterly meeting of the Executive Committee of the State Board of Health, to be held early in October, the Annual Reports of Local and Sub-Boards of Health will be acted on with a view

to their publication as a part of the General Report of the State Board to the Legislature.

You are therefore requested to send in to the Secretary of the Executive Committee, by October 1st, the Report of your Board, which should embrace a full and complete statement of the sanitary condition of your section for the past year, the prevalence of any endemic or epidemic diseases, with their probable cause, extent, duration and fatality, as well as the means employed to arrest their progress; also any items of local sanitary interest which may have been brought to the notice of the Board. Special mention should be made also of the existence of syphilis and phthisis-pulmonalis, and the extent to which they may have prevailed, noting any increase in either of these, especially the latter, within the year, among the colored population, and their frequency among this class as compared with the whites.

And as it has been deemed expedient by the Executive Committee to exclude from the Report of the State Board all papers from outside sources, (which have heretofore formed a large portion of the published volume,) it is hoped that their absence will be amply compensated for by the detailed reports of interesting matter contributed by the Local and Sub-Boards.

A general compliance with the State law, which requires Local and Sub-Boards to make Annual Reports to the State Board, is earnestly requested.

Very respectfully,

HENRY D. FRASER, M. D.,
Secretary Executive Committee S. B. H.

But seventeen replies have been received up to this time; these are from the following Boards, viz.: Abbeville, Barnwell, Beaufort, Bennettsville, Camden, Cokesbury, Darlington, Due West, Georgetown, Lowndesville, Mount Pleasant, Moultrieville, Spartanburg, Walhalla, Walterboro, Winnsboro and Yorkville. Charleston furnishing its valuable published report of the previous year, but no information as regards the present season beyond that to be acquired from the weekly mortuary report, which has been sent to the Secretary's office regularly.

Reports of Sub-Boards of Health.

ABBEVILLE COUNTY.

ABBEVILLE COURT HOUSE.

GENTS: The time for making the required statement by the Sub-Board of Health is upon us, and we report as follows:

During the first quarter of the year there was nothing special in the form of disease worthy of notice. A few cases of whooping cough was to be heard of among the colored children. The village was more free of catarrhal disturbances than usual, and, in spite of the rainy and cold season we had, the village and surrounding country suffered less from pneumonic disturbances than usual.

We do not remember any serious case having occurred in our village. As the warm weather of Spring set in the heat of the sun had a peculiar depressing effect on the nervous system, and in many instances the brain was quite disturbed, with bilious derangements of the stomach, but in most instances the cases yielded to treatment readily.

About the 1st of May we had an epidemic of measles, (*rotheln*,) cholera infantum, diarrhœa, dysentery and whooping cough. In many of the cases two of these diseases prevailed at the same time. The first disease appeared to have been brought here from the neighborhood of Anderson and by the railroad conductor. The other diseases entirely epidemic.

Each disease began its course in a mild form, but it was remarkable how these diseases, either singly or complicated, increased in severity. Most of the measle cases suffered more or less with diarrhœa and dysentery. The measles had much the appearance of scarlet fever, and certainly its sufferings and depression. What was very unusual, mothers had the second attack with unusual severity and distress. Many of the subjects were attacked with dysentery, then measles, and after the two diseases had been treated the first disease returned with more violence than of the first attack.

In several instances after the subjects were considered in a convalescent condition they were attacked with congestion of the brain, and died either before aid could be had or immediately afterwards. Dysentery and whooping cough occurred frequently in the same child.

In the village up to this date we have had very little malarial disturbances. Some few cases have occurred of a typhoid malarial character,

but yielded to treatment. In the village one case of typhoid has occurred. Some cases of intermittent fever have originated, but it is believed to be more from exposure to the sun than from the usual cause.

One case of congestion of the brain and spino-meningitis has occurred.

The heat of the sun has been severe and of a peculiar depressing effect. A very small quantity of rain has fallen through Spring and Summer.

We attribute most of our health disturbances to atmospheric peculiarities of which we have no control.

For the past thirty years our village has not suffered from sickness as during the past few months. It is a fact that settlers in our village improve in health after becoming citizens.

The streams around our village have been well drained and all lands well cultivated.

In our vicinity the colored women suffer much from irritable uterus, caused from prolapsus of the uterus, and that originates generally from early work after confinement.

Consumption continues to take off its victims. Many of these cases begin with dyspepsia.

Yours repectfully,

EDWIN PARKER,
Chairman of Board of Health, Abbeville, S. C.

COKESBURY.

H. D. Fraser, M. D., Secretary State Board of Health:

The Sub-Board of Health for Cokesbury, S. C., report that the past year has been a remarkable one in many respects, but especially in the length of the drought, which began in April and continued over five months. The small streams throughout the country were completely dried up and the larger ones greatly diminished in the volume of water. As a consequence, there has been an unusual amount of sickness, especially of a malarial origin, and in some sections of the County of a mixed character, such as typho-malarial fever. The death rate has been an increase over that of 1882. During the Spring months measles, rubeola and rotheln prevailed throughout the country. As a sequel there followed dysentery and diarrhœa, with a tendency to hemorrhage from various organs of the body.

There was less pneumonia during the Spring months than usual; instead, however, there was a large number of cases of catarrh. A few cases of scarlatina were reported in the neighborhood.

We again call your attention to the necessity of a general drainage law. Aside from the increased amount of rich arable land that will be

made available for agricultural purposes, the benefits in the matter of health cannot be estimated.

We also call your attention to the difference in mortality existing among the races. Among the negro population it is very much greater than among the whites. This we believe to be due to an utter disregard and neglect of the plainest sanitary laws, both as to hygiene and in the selection of building sites and in the construction of houses. There are in certain localities many sick who receive no medical aid whatever. Commending your labors in the amelioration of such cases as enumerated above and in the dissemination of sanitary knowledge among the people throughout the State, we submit the above report.

B. C. HART,
F. F. GARY,
L. DAWSON,
Sub-Board.

DUE WEST.

DUE WEST, ABBEVILLE CO., October 3d, 1883.

H. D. Fraser, M. D., Charleston, S. C.

DEAR SIR: In compliance with the requisition of the State Board of Health, we beg leave to make our annual report.

We may be permitted to say, that the past year has been characterized for a more general prevalence of disease than for some years preceding. The mortality has correspondingly increased, and we think the greater number of its victims has been selected from the elderly class of our people.

Soon after making our last report, typhoid fever made its appearance in the family of a member of our Sub-Board—only three were seized out of a number of nine persons; all recovered, although one (wife and mother) had a very severe attack, with tedious and protracted convalescence. A pupil in the Female College, located in an adjoining lot, was seized about the same time. She had a uniform mild attack. After its character was fairly established, she was removed to a room and all intercourse was forbidden—the disease spread no further.

In the family spoken of above the lady was nursed at night by several of her friends. Although we have time and again seen it transported from one family to another, yet again we have observed it confined to the family and often several members exempted from its attack.

During the Winter we had an epidemic of mumps. Orchitis was frequently associated with it, with inability to pass urine, requiring the use of catheter.

We had some whooping cough, with catarrhal affections that generally prevail during the Winter and Spring.

During the Spring and Summer we have had the usual amount of affection of stomach and bowels—occasionally some fatality.

In reference to prevalence of syphilis among the negroes, we note no increase. In our two last annual reports we have called attention to increase of phthisis among this class of our population. A member of a family to which I called attention in my last report died a few days after; another member, some 24 or 25 years old, has had two or three attacks of hemorrhage. Although upon the farm and able to do some work yet, I regard will sooner or later fall a victim to the fell destroyer.

Respectfully submitted.

J. L. MILLER,
Chairman Sub-Board Health, Due West.

LOWNDESVILLE.

LOWNDESVILLE, S. C., September 28, 1883.

HENRY D. FRASER, *M. D.*

DEAR SIR: In compliance with directions from State Board, we, the Sub-Board of Lowndesville, beg leave to make our annual report. In the early part of the year we had an unusual amount of catarrhal fever, with few cases of pneumonia. In Spring dysentery prevailed to considerable extent, especially amongst children. In Summer and Fall we had, and are now having, bilious, intermittents and remittents, a few cases typhoid fever; none proving fatal. So far we have been exempt from diphtheria and meningitis, for which we should be thankful. No endemic or epidemic has prevailed in our midst during the present year.

Respectfully submitted.

A. J. SPEER, M. D.,
Chairman.

BEAUFORT COUNTY.

BEAUFORT.

BEAUFORT, S. C., September 19th, 1883.

H. D. FRASER, *M. D., Secretary Executive Committee State Board of Health:*

I beg leave to submit the report of the Board of Health of Beaufort for the past year:

It having been our good fortune to have escaped from any disease of

an endemic or epidemic character, there is very little that can be said, except that the health of the town has been unprecedentedly good since my last report.

There has been no case of diphtheria, scarlet fever, smallpox or any contagious or infectious disease of like character. We have had also less of malarial diseases than usually falls to our lot, and the surrounding country has produced certainly no more than its ordinary share of such complaints. The freedom of our town (I may say its entire immunity) from zymotic diseases may be to a great extent attributed to the absence of *sewers*, there being only two or three covered sewers within the limits of the town, and they are solely for the purpose of carrying off surface or rain water. Most of the time they are entirely dry; consequently it is impossible for deleterious gases to form in them. The land upon which the town is built is so situated it is quickly relieved of rain water by natural declinations. Very little water is seen lying in our streets after a rain. All of these causes contribute toward the health of the place.

Very early in the season we begin the distribution of disinfectants—a solution of copperas, sulphate of iron and carbolic acid, also chloride of lime and unslacked lime. The vaults of all kinds are thoroughly watered with the above solution and the lime sprinkled freely. This is done at *regular intervals*, and if necessary oftener than the stated times.

We have every reason to congratulate ourselves upon the success of our plan, and also upon having an Intendant and Town Council ready and willing to carry out any reasonable suggestions. The disinfectants are distributed by the town carts, and it is only necessary to inform the Town Marshal what spot requires disinfecting when it is immediately attended to.

We prohibit the turning up of the soil and the cartage of new earth within the limits of the town at a very early date, and do not allow it to be resumed until after a frost.

I cannot say that we have been able to discover any increase or diminution of cases of syphilis or phthisis pulmonalis. There are many more cases of the latter seen now than before the war, but it has not increased or diminished within the past eight or ten years. Syphilis is seen in abundance and in all its varied forms. A great many very bad cases among the colored people, owing to incompetent treatment from "*Root Doctors*" and the like, but I cannot say that the disease is on the increase.

Respectfully,

H. M. STUART, M. D.,

Chairman Board Health, Beaufort, S. C.

The ordinance in relation to births and deaths has come into practice but a short time—too soon for any record to be made. H. M. S.

BERKELEY COUNTY.

MOUNT PLEASANT.

MOUNT PLEASANT, S. C., September 15, 1883.

To the Chairman and Members of the Executive Committee of the State Board of Health, Charleston, S. C.

GENTLEMEN: In response to a circular from Henry D. Fraser, M. D., Secretary of Executive Committee State Board of Health, addressed to our Local Board of Health, and forwarded to us in August of the present year, we take much pleasure in communicating to your honorable body replies to the information asked for in said circular, as well as all such other matters of sanitary importance as we concluded might be of interest to your Board, and possibly of some assistance in your proposed Report.

The report herewith submitted has been compiled with the aid and valuable assistance of Dr. D. R. Williams, the Medical Adviser of our Board, and of Dr. J. Y. DuPre, one of our resident physicians, and is made for the year ending September 15, 1883.

With much gratitude we are able to report very general good health, and the *absolute absence* of any form of epidemic disease whatever; and with a permanent population of about eight hundred, and a Summer population of possibly one thousand persons, we have only to record the following cases as occurring within our corporate limits:

Two cases of membraneous croup—both in one family. Both terminated fatally, and both attributed to a damp and leaky house.

Three fatal cases of "phthisis pulmonalis,"—all colored fishermen who led a hard and exposed life.

Several cases of acute "cholera morbus," none fatal, and all caused by intense heat and imprudence in diet.

Several cases of a fever of an ephemeral character, simulating "break bone," but yielding readily and successfully to treatment.

Of phthisis pulmonalis there has been no increase, and it does not prevail to any extent, save among those very few persons whose occupations or business causes them to expose themselves to the severity of the weather.

Of "syphilis" there has been a considerable increase among the colored people; not more than five cases have been reported among the whites, and the extent of this disease among the negro, as compared with the white inhabitants, is very much greater among the former, and we are given to understand that it prevails to a great extent just at present.

The sanitary condition of this town has never been better. Ponds have been filled up or drained, ditches cleaned and low places very fre-

quently both drained and filled up. Weeds and grasses are kept cut, and when cut immediately carted away, the scavengering of the town being carefully and strictly attended to. Especial attention has been given to the vaults and closets in our town. Many of our privies are built on the surface, and consequently need great care and attention. No places of this kind are opened at all to be cleaned between the 1st of June and the latter part of October, and they are, during the Summer months, constantly filled with disinfectants. We have used with great satisfaction sulphate of iron, or copperas, as a disinfectant. It is cheap and free from odor, and its effects are far more permanent than chloride of lime. In some places nothing has been effectual but carbolic acid, but, as a general thing, the solution of copperas has been found the best and most desirable disinfectant.

Special ordinances have been passed by our Town Council as to the introduction of any person or persons suffering from contagious or infectious diseases into the village, and the Board of Health are clothed with ample and complete power in regard to this matter, as well as in all quarantine regulations concerning the town. The public cemetery or burial place is situated in the remote suburbs of the village, and no interments are ever permitted in the town under any circumstances.

Meetings of our Board are held whenever necessary, on the call of the presiding officer, and never less than five or six times during the Summer season.

There has been no increase in the matter of insanity in Mt. Pleasant, and there are no new cases to report. There are two or three persons who are slightly idiotic, but their condition can hardly be termed "insane." Technically speaking, they are perfectly harmless, and no restraint has ever been found necessary to be placed on their actions in order to avoid annoyance to the community.

Answers are respectfully solicited from your Board to the following questions, said information being asked with special reference to our low country region:

1. Is it better to *drain* or to *fill up* low and swampy places in and about our towns, and at what season?

2. Is it better to disturb and cut weeds and undergrowth during the Summer or to allow them to remain until the Fall, and then burn or destroy them?

3. What is the *best* and most effectual disinfectant for the use of cities and towns in times of sickness and epidemics?

Respectfully submitted.

CHAS. E. CARRERE,
Chairman Mt. Pleasant Board of Health.

BARNWELL COUNTY.

BARNWELL.

BARNWELL, S. C., September 22, 1883.

HENRY D. FRASER, *M. D., Secretary Executive Committee State Board of Health.*

DEAR SIR: In response to your circular, I submit the following report: Our town has not been as healthy during the Spring and Summer as heretofore. Very few families have escaped remittent and intermittent types of fever; mortality greater in the former than I have ever known. A few physicians term severer cases of remittent typhoid. In the twelve years of my practice I have never met with a case of typhoid fever in the County.

The above types of fever have prevailed extensively in the surrounding country; I think principally due to decaying vegetation on woodlands. Heretofore the woods have been burned off every Winter for the purpose of keeping down gnats and mosquitoes and other insects and furnishing pastures for stock. The turpentine farms and the Stock Law now make it impossible and unnecessary. A large percentage of these pines die annually from improper chipping, which is another cause of fever. The unhealthiness of our town is due to the over-growth of weeds and the accumulation of offal from kitchens and yards in our streets. No provision has been made for their removal. Heretofore hogs have been our scavengers.

For two years our town has been greatly annoyed by an offensive public privy at the rear of Court House. The Board of Health and Town Council were repeatedly petitioned by the citizens for its removal, and they in turn petitioned the County Commissioners, who had had it erected for the convenience of the Court. They could not be prevailed upon to keep it in a cleanly condition or remove it. Private parties to whom its vicinity made it particularly offensive were forced to pull it down under cover of night.

The Jail and Poor House are well ventilated and kept in a cleanly condition.

I am impressed with the suggestions of my venerable friend Dr. T. T. Robertson of Fairfield in regard to medical attendance on the poor. There are one hundred and one paupers that are fed and clothed by the County. Of this number four are inmates of the Poor House. These receive medicine and medical attention, while the remainder are dependent upon the gratuitous services of the physicians of the County.

I have seen one case of syphilis in four years, and not one case of phthisis pulmonalis. Never met with the latter in a negro.

I again call your attention to the importance of an Act enforcing physicians to keep a record of births, deaths, &c. These statistics would be of great value. An Act has been provided wherein dentists are required to keep a record of all cases treated. Of how much more importance that physicians should be required to do the same! The success of the deductions and demonstrations of Dr. Farr, in England, should encourage us to follow in his footsteps. I hope that the State Board of Health will feel the importance and necessity of such an Act and will petition the Legislature accordingly.

Our town has elected what is termed a dry ticket, thereby depriving us of the revenue arising from the sale of liquor, which revenue furnished us with the means of partially keeping up our sidewalks, bridges, &c. This work can better be carried on by chain gangs, formed of prisoners sentenced to the Guard House and Jail, if the Legislature will take steps in the matter.

Yours respectfully,

A. B. PATTERSON, M. D.,
Chairman Sub-Board of Health.

CHESTER COUNTY.

CHESTER.

CHESTER, S. C., October 6th, 1883.

HENRY D. FRASER, M. D., *Secretary Executive Committee State Board of Health:*

DEAR SIR: We are gratified to report that Chester County has enjoyed a remarkable freedom from diseases of a serious type throughout this year. The Autumn months of 1882 were characterized by the prevalence of an unusually malignant form of malarial fever. Those cases proving fatal were, as a rule, attended by severe icterus and hæmatusia, and also, occasionally, hemorrhage from the stomach and bowels.

No part of the County was exempt from this pernicious form, nor can it be said that those districts bordering creeks and rivers suffered more than any other. The serious nature of this fever was first observed in August and continued throughout November. Since that time, while malaria continues to prevail, it readily yields to quiniæ. Sub-cutaneous injections of bi-sulphate quiniæ was the main reliance in the management of these cases. It is interesting in this connection to note the rainfall during the Summer months as a factor determining the character of this disease in the Autumn. The Summer of 1882 was unprecedented for its heavy and continuous rains in this County; vegetation flourished until

destroyed by frost late in the Fall, and malaria was never before so pernicious. The Summer of 1881 was noted for its drought, and so has been the Summer of 1883, and in each instance in this County, that is, the year preceding and the year following this great malignancy, the malaria has been unusually mild.

Our Committee, having obtained the opinion of the majority of physicians in this County, is prepared to report phthisis pulmonalis as rapidly increasing among our colored population; the estimated ratio of cases occurring among the colored to those among the whites is as 12 to 1. The causes assigned are: 1st, crowded and poorly ventilated tenements; 2d, improper diet and irregular habits; 3d, dissipation.

The sum of the whole is their ignorance of the simplest laws of health, the violation of which makes them an easy prey to diseases of a tuberculous nature.

Very respectfully submitted.

J. A. WATSON,
Chairman Sub-Board of Health for Chester.

COLLETON COUNTY.

WALTERBORO.

OFFICE SUB-BOARD OF HEALTH,
WALTERBORO, September 27, 1883.

Chairman State Board of Health of South Carolina.

DEAR SIR: It is with pleasure we are able to state that this Sub-District has been free from epidemics since our last report. Last Fall we had an unusually large number of cases of bilious remmittent and intermittent fevers, and as a consequence chronic derangements of the stomach and liver were of frequent occurrence during the Winter and Spring. Pneumonia and pleurisy were rather more common with us than usual. The sanitary condition of this Sub-District is relatively good; the mortality in proportion to population is and always has been exceedingly small. As far as we can learn only three (3) deaths have occurred from phthisis pulmonalis during the year, and all three were among the colored population. As far as our observation goes, phthisis pulmonalis is much more common among the colored people than among the white—nearly two to one, we think. Syphilis is very prevalent among the negroes; there are very few cases among the whites. The town of Walterboro has always been noted for the salubrity of its climate. It is located upon a high sand ridge. Our wells are from twenty (20) to thirty (30) feet deep. The water is pure and cool. We seldom have a case of

bilious remittent fever originating in the town. In Winter the atmosphere is dry, cool and bracing. The town makes an excellent Winter resort for consumptives.

In conclusion we would call attention to the frequency of chronic indigestion among the small farmers of our country, which must have attracted the attention of every practicing physician. These people have regular habits, almost live in the open air and take an abundance of exercise, and with wholesome food properly prepared they would be among the healthiest of our population. Would it not be well to issue a large number of circulars for distribution among them, instructing them as to the best kinds of food, together with some simple directions as to its preparation? also instructions as to the building of their wells and the importance of providing themselves with pure water, and any other simple sanitary regulations that they might conveniently carry out?

Very respectfully,

CHARLES WITSELL, M. D.,
Chairman Sub-Board of Health.

DARLINGTON COUNTY.

DARLINGTON.

DARLINGTON C. H., September 26, 1883.

HENRY D. FRASER, M. D.

DEAR SIR: I have to report to you that we have had during the last Summer an unusual amount of sickness in this vicinity, mostly malarial fevers, which were largely of a mild type, consequently not difficult to control.

We have also had an unusual amount of septic fevers in lying in women.

In regard to inquiries about phthisis pulmonalis and syphilis, would say both diseases are exceedingly common amongst the colored people, the former alarmingly so. I attribute this to several causes. Insufficient and unwholesome diet, badly ventilated houses and the absence of proper and seasonable medical attention are probably the chief causes of this disease.

The latter disease, (syphilis,) although common, does not seem to injure permanently the colored race. I know many who have had it in secondary state who now seem to be perfectly sound and well and have in very rare instances transmitted it to their children.

It generally seems non-malignant in colored people. I will here state, also, that in the practice of a quarter of a century I only remember to have seen two cases of urethral stricture in colored patients. I also observe a great many cases of nervous dyspepsia, which in the *ante bellum* days was rare amongst that class. In conclusion, I believe that with proper attention to ventilation and procuring good water the health of the entire State would be vastly improved.

Very truly yours, &c.,

B. C. NORMENT, C. C. B.

FAIRFIELD COUNTY.

To the Chairman State Board of Health:

Having been deputized by Dr. T. T. Robertson to act in his stead, in making a report of Fairfield County, I beg leave to submit to your honorable body the accompanying remarks:

This County has been exempt, in a great measure, from epidemic diseases since the last report, with the exception of influenza, which prevailed during the last Winter, and whooping cough, which, however, has not been general in the whole County. I should mention, also, that a form of catarrhal conjunctiviti prevailed during the early Autumn months. These diseases were mild in character, and although there were some severe cases of influenza, still they yielded to treatment, and there were no fatal cases that I know of.

In response to the inquiry as to the increase of phthisis pulmonalis, I am of the opinion that there has been a steady increase of this disease for several years, and during the past year the increased number of cases leave no room for doubt. The disease shows a decided partiality for the negro race, from what cause I am unable to explain, unless it be that they need more the care and attention to their diet and clothing which formerly was supplied by their owners. Now, left to their own resources, and being naturally imprudent, they are forced to expose themselves to all kinds of weather, and, being imperfectly clad and not sufficiently fed, their systems are unable to withstand the invasion of disease, and this particular form seems to be increasing yearly amongst them. I have been informed that previous to the war phthisis was a rare disease, and that the negro was regarded as almost exempt, but of later years it has become exceedingly common.

We are aware that civilization carries many diseases in its train, and this manifestation may be an outward cropping of their civilization, just as we know that monkeys in a menagerie frequently die of phthisis, whilst who ever heard of a consumptive monkey in a state of freedom? What-

ever be the cause, it deserves investigation, and it is my opinion that if a little of the money now being frittered away in introducing foreign labor into the State was used in promoting and taking care of the labor now here, which is universally acknowledged to be best adapted to our systems and climate, I think our property and interests would be better served.

Physicians residing in large cities, where they have numerous hospitals and dispensaries to supply the wants of suffering humanity, are not aware of the tax imposed upon those of us who practice in villages and country. It is unpleasant to refuse to assist any one in suffering and distress, and yet to give not only time and labor but to furnish the medicine is a greater tax than most of us can bear; and whilst I apprehend that our people are already taxed to the utmost in their impoverished condition, still it appears equally hard and unjust that a small portion of a community should bear the charity of that community.

Dr. Robertson, in his last report, suggested the erection of a cottage hospital at every County seat for the purpose of supplying the wants of those too poor to provide for themselves. This seems to me a useful hint, and I am confident that the medical services would be gladly rendered gratuitously in preference to the present arrangement, for every one would recognize the fact that the time spent in prescribing at the hospital would be more than saved in the lessened distance he would have to ride. It may be urged that the Poor House supplies this need, but it is a known fact that the Poor House does not reach the large number, but only the few disabled who are unable to work at all for themselves.

My object is to provide for the many who are able to work and serve a useful purpose in the community, but are temporarily disabled from working and are too poor to pay for proper medical attention. I do not propose to elaborate this subject now, but only throw out the suggestion, hoping that some one more fitted will act upon it.

The Legislature, two sessions ago, passed an Act requiring all physicians to register their names and date of graduation. The exact purpose I never comprehended, for, although I readily saw the object intended, still the loose manner in which it has been carried out almost renders the Act a dead letter. But my purpose is not to censure that Legislature, but to urge upon your body the importance of an Act requiring each and every physician to register the births and deaths occurring in his practice. This would furnish a vast fund of statistical importance which can be obtained in no other way, and is the method adopted in England and I believe in all other countries.

The cost of obtaining this information could be reduced to a minimum by requiring the Chairman of each Sub-Board to act as Register for the County, and he could condense the reports sent in by different

physicians and forward to Chairman of State Board, who could act as Register General and condense and place these reports on record. The actual cost would simply be the cost of blanks and the postage.

R. B. HANAHAN, M. D.

GEORGETOWN COUNTY.

GEORGETOWN.

GEORGETOWN, S. C., September 6th, 1883.

H. D. FRASER, M. D.

DEAR DOCTOR: In accordance with your request as contained in the circular, I will endeavor to comply with the same as far as possible. Georgetown in the past year has exhibited an immunity to disease which should disarm prejudices so long existing. Although her topography is such that exemption from malarial diseases would be impossible, yet her fevers have been mild and generally amenable to treatment, while reports and correspondence with some of the upper districts show the reverse picture. There have been no epidemics or contagious diseases, with the exception of a very few cases of diphtheria, and only one fatal, the rest readily yielding to treatment. Here and there I have seen a case of typhoid fever, which is uncommon in this section. Late in the Autumn we are more apt to witness a blending of types of fever as designated in the term typho-malarial. These cases, although tedious and protracted, generally terminate favorably. More attention is paid to our sanitary regulations, although there is still room for improvement. There are a great many negroes located here, who are generally careless as to the laws of hygiene. You ask that special mention should be made of the existence of syphilis and phthisis pulmonalis among the colored population. This is an interesting field of inquiry. I note that before the war in a practice among some four or five thousand negroes phthisis and syphilis were rare diseases, and now these diseases are more common than among the whites. Occasionally a case of phthisis was met with among the house servants, but seldom if ever among the plantation negroes. We can understand how the changed relations of this race would bring about a deviation in their habits, and without the care and discipline of the white man they would live irregularly and be subjected to continued exposure, but this does not apply to the domestic servant in *ante bellum* times. If this race as a laboring class is to be fostered and preserved, this subject is replete with interest to the statistician and sanitarian apart from the claims of humanity. The same remarks apply to syphilis. Before the war this disease among the

blacks was almost unknown and now we see it in its varied forms. It undoubtedly commenced when the country was occupied by the Federal soldiery and has been prevalent ever since.

Another matter not contained in your circular. I find scarcely a year passes but what a few of the colored population are sent to the Lunatic Asylum. Before the war insanity among them was rare indeed, and now it exists commonly among them in this section, and, I believe, throughout the South. Cases that I have examined show a condition of mania and melancholia, the result very often of religious excitement. This may be due to an attempt to cultivate the æsthetic to the expense of the physical organization, as well as the struggle to support existence, creating a necessity to tax the *vis nervosa*. These diseases are about on an average from year to year. I note some three deaths in a white family from consumption, due to direct hereditary transmission. I have not had the opportunity of tracing it in this way in the colored race. During the Spring of the year there has been a greater amount of sickness among children, resulting from dentition and complicated with malarial impressions. At the time of this writing, I am glad to say the sanitary condition of the town is exceptionally good.

Respectfully submitted.

T. P. BAILEY, M. D.

KERSHAW COUNTY.

CAMDEN.

CAMDEN, S. C., September 29, 1883.

HENRY D. FRASER, M. D., *Secretary Executive Committee State Board of Health.*

DEAR SIR: In compliance with the State law and the circular of the Executive Committee of the State Board of Health, our Sub-Board beg leave to submit the following annual report:

At the time of our last report a widespread epidemic of conjunctivitis was prevalent in Camden and Kershaw County. This continued until about the 1st of November, but resulted in no permanently bad effects to the eyes of the sufferers.

The latter part of the Summer and the Fall of 1882 were attended with some malarial fevers of a mild type, which generally yielded to the ordinary treatment. In the Fall and Winter months there were fewer cases of pulmonary affections than usual, perhaps. During the month of January of the present year there were a number of cases of gastro-intestinal irritability, confined to nursing children, lasting in each case

not longer than two or three days, and all ending in recovery. The cause was uncertain. They could not have resulted from simple indigestion, as they occurred in different families and under different hygienic conditions.

The Spring was accompanied with the usual amount of diarrhœa and dysentery, which were easily subdued by the ordinary remedies.

Our Summer and Fall up to this time have been remarkably exempt from malarial fevers, there having been a few cases of intermittent and remittent fevers of a mild type. This immunity is probably attributable in a large measure to the long drought, one of the factors of malaria (moisture) being absent. During the past two months we have had an epidemic (40 or 50 cases) of jaundice, proceeding, perhaps, from the very warm weather, the latter producing congestion or other derangement of the portal circulation.

We now wish to invite the special attention of the Executive Committee of the State Board of Health to the recent appalling and distressing calamity that has befallen our community in the shape of *ice cream poisoning.* For the past two or three Summers it has been the custom of the ladies of the Baptist church here to serve ice cream for the benefit of the church every week. Accordingly, on Friday afternoon, the 3d of August, it was furnished as usual at the church, and a large number of persons, principally women and children, ate of it. Early next morning, but ten or twelve hours after they had partaken of the cream, most of them were attacked with the most violent and alarming symptoms, indicating poison of a very virulent character. During the whole day fresh cases continued to be reported, until the number amounted to 60 or 65. By this time our community was naturally almost in a state of dismay. Our physicians were of course at sea as to what the poison really was, and had to contend in the dark with an unseen and unknown foe. We began our treatment, however, believing at first that the poison was either *sub-acetate of copper*, resulting from careless cleansing of the vessels used in the preparation of the custard and cream, or that it was due to *adulterated flavoring extracts.* But as later symptoms were developed, we abandoned this theory and came to the conclusion that it must be *arsenic.* This is at present the prevailing opinion both with the profession and the laity. After twenty-four hours had elapsed we discontinued the use of antidotes and directed our attention to subduing the violent gastro-enteritis, high fever and other dangerous symptoms. At this juncture, availing ourselves of the very kind and generous offer of the South Carolina Railway Company to place at our disposal their engines and men if we needed them, a telegram was sent to Dr. B. W. Taylor of Columbia, asking for his valuable counsel in our distressing emergency. He promptly responded and came to our assistance by the first train. He

visited several of our worst cases, approving what had already been done, and making some further suggestions as to treatment. Finally, by assiduous attention on the part of physicians and the tenderest and most careful nursing on the part of friends, all the victims began to convalesce after a week or ten days, except one little girl about seven years old, who died, she having been previously debilitated by an attack of remittent fever.

On the third day after the poisoning, a joint meeting of our Sub-Board of Health, of the Town Council and of a few citizens was held, and the disaster was deemed of such grave import that it was at once determined to communicate with Governor Thompson in reference to it, which was accordingly done by Judge Kershaw. The Governor then sent Mr. Philip E. Chazal, the State Chemist, who, after taking full notes of the symptoms and circumstances attending the poisoning, took possession of the remnants of custard and of the flavoring extracts with a view of making a chemical analysis. After several weeks had elapsed he made his report to the Governor, stating that he had made a partial analysis, having "tested for arsenic and incidentally for antimony," but had failed to discover traces of either. Here the matter rests for the present.

There are some very suspicious circumstances attaching to this mysterious affair. And whether it be the result of accident or design, as similar occurrences have been recently reported in other parts of the country, we have thought it eminently proper to direct the particular attention of the Executive Committee to it, as it is becoming a subject of vital concern to the public everywhere.

Respectfully submitted.

A. A. MOORE, M. D.,
Chairman of Sub-Board of Health of Camden, S. C.

MARLBORO COUNTY.

BENNETTSVILLE.

BENNETTSVILLE, S. C., October, 1883.

In the Winter of 1880-81 an epidemic of an unusual nature made its appearance in Marlborough County. It was not confined to the County or State, for it certainly prevailed at Charlotte, N. C., and in Baltimore. Yet, notwithstanding the wide extent of territory invaded, the vast numbers of persons attacked, and the fact that traces of the disease still linger, no allusion to the matter has been made either by the medical journals or in the reports of the Sub-Boards throughout the State.

The disease in question is essentially of a nervo-rheumatic nature, and the symptoms characterizing it so uniform, so rare and peculiar as almost to constitute it a new disease. The writer alone has treated several hundred cases. It attacks more colored people than whites, more females than males, and more adults than children. The symptoms of the disease are a pain in the side, passing up into the shoulders, thence along the back of the neck and head and down into the eyes. Swimming of the head is a very common attendant, and is complained of in nearly every case. These symptoms, so few and distinct, are all that belong to the disease in the great majority of cases. No fever is present in even the most severe of the uncomplicated cases; the skin is cool and moist, the tongue clean and the pulse soft and natural. There is no marked debility, and not the slightest catarrhal disturbance. But there are occasional variations from the ordinary grouping of symptoms as described. Sometimes the pain attacks the bowels, and the sufferer will complain that the headache and abdominal pain alternate, first one, then the other. In other instances the variations assume the form of *pure headache*, lasting for weeks, if not relieved; or *pure sore throat* without a trace of inflammation. That these are varieties of the same disease is evident from the fact that they yield as if by magic to the remedies which relieve the well marked cases.

In a comparatively small number of instances the heart is attacked. From the conspicuous absence of arthritic inflammation, it would seem that this complication might occur primarily, but it did not do so; it was invariably consecutive to the other symptoms. In the cases in which the heart became involved, the breathing was oppressed, the pulse slow and irregular, the countenance anxious, and the situation of the patient was manifestly one of great peril. Only two of these cases died, though others were extremely ill. The sweeping character of the epidemic, the migratory point and the fact that the heart was sometimes attacked, earned for the affection the appellation of *rheumatic influenza.*

The disease continues, if not relieved, for several months or a year. Some patients upon applying for relief stated that they had suffered for a year or more. Yet the affection is very mild as a general rule and easily and quickly relieved in all its uncomplicated forms.

Nothing is likely to awaken more interest in the profession in the near future than the ravages which pulmonary consumption is making among the colored people of the South. It is indeed a remarkable fact in the history of the disease. If it may be said of this, it cannot be alleged of any other malady, that it is in any way connected, at least so far as origin and growth are concerned, with the great changes incident to emancipation, every one knows that it was formerly an exceedingly rare event to meet with the disease in the negro. Old physicians have declared

that in the course of a long practice they never encountered a case, and non-professional persons in advanced life have pronounced it, till recently, an unheard-of occurrence. Now whole families are everywhere dying out. Is it a mere coincidence? If so, it is a most wonderful one, for the great change in the history of the race and the great event in the history of the disease have occurred almost simultaneously, the latter change, considering the former immunity and the present liability, being scarcely less marvelous than if the inferior animals were all at once to become subject to malarial and continued fevers.

Whether the extraordinary increase of instances of this disease occurring in colored people is to be attributed in part, wholly, or at all, to the recent changes in their condition, is an interesting question. What gives rise to this question? Here is a race of people transported from a hot to a colder climate and enjoying through a series of generations an unparalleled immunity from the disease. So long as slavery continues the exemption remains almost absolutely perfect and universal. Suddenly the race is liberated, and almost at once, as if abolition were the signal for its onset, the disease commences and increases with such startling rapidity that even now it may be foreseen that, unchecked, it is to become the great enemy of the race. To what circumstances, if to any, in the changed condition of the negro, is this accession of the disease to be ascribed? Is it that he is poorly fed or housed or insufficiently clad? that he is over-worked or exposed? neglected when sick, or intemperate? In answer to these questions it may be observed that his accommodations are at least as good, and in very many instances much better, than he formerly had; that his food is more varied and better, and that, as a general rule, he is comfortably clad. He is free, and construes that freedom to mean that he is not to be over-worked or unduly exposed. Besides, he suffers less than formerly from other diseases arising from exposure. He is not neglected when sick, but, if a laborer, is looked after in a way to illustrate the humanity of his gentlemanly employer. Besides all this, it is not in the poorer or more vicious but among the more respectable and well-to-do classes that the disease is to be principally met with. From no circumstance or combination of circumstances apparent in their changed condition, therefore, is this remarkable incursion of the disease into the negro race to be explained.

But, causeless though this phenomenon may appear to be, it is nevertheless an indisputable fact that it exists and that it is important as well as interesting, for here the disease exhibits itself under circumstances extraordinary and unprecedented, such as are not to be met with outside the South, and peculiarly favorable to the study of its nature and etiology. It is here in its origin; not traceable to the vicissitudes of a

rigorous climate, to exposure, hardship, poverty, or other depressing causes which lower the system and diminish its powers of resistance. It is not due to contagion, not true that one race has been contaminated by contact with the other, for only after the intimacy of the relationship between master and servant ceased did the disease begin. The principle of inheritance plays no part, for there is no tuberculous diathesis, no predisposition, no hereditary taint. In short, here the disease is in its incipiency and its nakedness, stripped of many of the entanglements that environ and obscure it elsewhere; and it is apparent that now is the time and here the place when and where it can be studied to the greatest advantage. A Commission of able physicians, appointed by the State or General Government, allowed the necessary time, furnished with the requisite means, and charged with the investigation of the subject, would have opportunities which were never offered before and may never happen again.

Would that at this auspicious moment another Jenner might arise to battle with this—the mightiest scourge of the human race—to bestow an inestimable blessing on humanity and add another lustre to the glowing renown of the noblest of sciences.

J. T. JENNINGS, M. D.,
Chairman.

OCONEE COUNTY.

WALHALLA.

WALHALLA, S. C., September 29, 1883.

HENRY D. FRASER, M. D., *Secretary Executive Committee State Board of Health, Charleston, S. C.*

DEAR SIR: During the past year our section of country has been entirely free from endemic or epidemic diseases, and with the exception of a few sporadic cases of dysentery in the Spring and some cases of typhoid fever during the hot months of the past Summer we have had a remarkably healthy season. The past Summer has been extremely hot and dry. We have had no general rains from April to middle of September. The few cases of typhoid fever that prevailed in the County were confined almost entirely to water courses, and, in consequence of the low ebb of the waters, the exposure of the banks and mud bottoms of these streams, in some localities these fevers partook somewhat of a malarial type.

As to syphilis among the negroes, it is certainly on the increase here. The prevalence of syphilis has exceeded that of any former year by at

least twenty per cent., while with the white population, except among the lowest class of women associating with the negroes, it is almost unknown here. This increase of syphilis among the negroes is attributed to the constant contact of the citizen negro with the migrating negro upon the railroads.

As to consumption, there have been but few cases during the past year, the majority of the cases prevailing among the negroes and almost invariably among negroes of the mulatto câste. Seventy-five per cent. of the negroes dying in our Poor House die of consumption.

Respectfully submitted.

L. B. JOHNSON, M. D.,
Chairman Sub-Board of Health for Walhalla.

SPARTANBURG COUNTY.

SPARTANBURG.

H. D. FRASER, M. D., *Secretary Executive Committee*
State Board of Health.

DEAR DOCTOR: I have requested the physicians through the County, by means of the press, to report to the County Board of Health the prevalence of any endemic or epidemic diseases, or any items of local sanitary interest, but as yet have had no report.

The Summer has been unusually dry; indeed a drought has prevailed throughout the County. Perhaps we have had less of febrile diseases than usually prevails.

The Town Board of Health has been convened only once or twice during the Summer. I think I can report for our young city and the County the prevalence of healthfulness.

You will permit me to call your attention to the necessity of having the Meteorological Observer paid some salary adequate to his services. A competent person cannot be obtained without pay. Cannot your Board induce the Legislature to make appropriations for this purpose for ten years? Professor D. A. DuPre informs me he will continue the work under a salary.

Very respectfully, yours,

W. T. RUSSEL,
Chairman County Board of Health.

YORK COUNTY.

YORKVILLE.

YORKVILLE, S. C., October 1st, 1883.

H. D. FRASER, *M. D., Secretary Executive Committee State Board of Health:*

The Sub-Board of Health for York County ask leave herewith to present the following report:

Since their annual report for 1881–82 there has been no unusual feature in the character or grade of the various diseases which have prevailed in this County during the past twelve months.

Certain sections of the County have been afflicted with catarrhal fever, pneumonia and dysentery during the Winter and Spring, with intermittent, remittent and typhoid fevers and diphtheria during the Summer and Fall, and, therefore, were endemic in their extent and character.

But no disease nor grade of disease diffused itself so fully and completely over the whole County as to entitle it to the appellation of epidemic.

The prevailing or existing causes of such diseases as are herein specified remain the same as heretofore in the County along the creeks and lakes of stagnant water, and will in all probability remain in such condition until the people of the County are furnished with suitable and necessary aid in removing the cause of the same.

In the town of Yorkville, with its streets well supplied with superficial drains, its back lots and privies thoroughly cleansed under the inspection of a Committee appointed for this purpose by the municipal authorities and the work supervised by the Town Marshal, there remains apparently nothing more as a sanitary measure to be adopted in the town and its immediate vicinity. The result has been that very little sickness of any character has prevailed to any great degree in the town. A year since, when this and other towns along the lines of trade and travel were threatened with the introduction of smallpox, the medical profession of this County being furnished with a limited supply of vaccine virus applied the same in many cases as a precautionary measure against the introduction and spreading of this disease in the town and County. Many hundreds yet remain to be vaccinated, and thus protected by this great blessing, and will continue to do so until smallpox shall again present itself at the gates of our town and strikes at the doors of our homes, arousing the fears of our people and inducing them to lay hold of the means so freely offered them for their own protection, comfort, health and life itself.

Such is human nature that when the enemy is apparently far away, making no apparent advances, then man's apathy and indifference to his own personal interests cause him to neglect those important duties which he owes to himself and family, and which eventually involves their comfort, health and lives. The County Sub-Board of Health, acting in concert with the municipal authorities of this town, have made every reasonable, practical effort, so far as their means and power will enable them, in adopting every possible sanitary measure for the protection and preservation of the health of its citizens.

The municipal authorities of the town have no jurisdiction outside the incorporate limits of the same, and therefore can take no decided action in any sanitary plan or purpose which has for its object the happiness and prosperity of the people of the County.

The people themselves are calmly, patiently and intently awaiting the time when they can appeal to the General Assembly of the State for that assistance by which alone they will be enabled to remove the sources and cause of those diseases which have afflicted the settlers of this County since its first settlement in 1750.

The source and fountain head of these diseases extend along the sluggish streams of our County, which cover over with water a vast number of acres of valuable lands, rendering them not only worthless but positively injurious to the health of the County, and which, under the skill and enterprise of man, could be brought into a high state of cultivation, adding greatly to the production of the County and conferring untold blessings in the way of health upon the whole community.

The people being now blessed with a good civil government, labor still under two very great drawbacks or deficiencies. These are: 1st. The want of good market road by which to convey the productions of the soil to the nearest public market by the most easy and ready manner possible. 2d. The want of practical, effectual drainage of our creeks and stagnant lakes, by which twenty-six thousand (26,000) acres of rich bottom lands may be redeemed and brought up to a high state of cultivation, and the source of diseases along the same be destroyed or removed. These are the greatest real wants and most urgent necessities of the County at the present time. These great drawbacks or deficiencies can all be removed by timely assistance from the State, by a practical, judicious system of drainage, thus conferring not only wealth and prosperity upon the County, but also that blessing beyond price or value —good health both of body and mind.

The people do not ask, neither do they expect, that this work shall be done gratuitously for them. But they have not now the financial means nor the physical power within themselves to enter upon and complete this great and important work, and therefore they will at some

future appropriate time call upon the State for such assistance in the way of labor as will enable them to perfect their great, grand desideratum within a reasonable time.

For this work so rendered to them by the State they are now more than ready and willing to enter into legal obligations to compensate the State to the full extent of the cost of such work by the payment of a small annual tax upon the property of those landholders whose lands have been drained by State assistance and thus rendered fit for cultivation.

Your Committee have thought proper to address a communication to gentlemen of the medical profession in several of the surrounding Counties with the view to ascertain their views in regard to the benefits of County drainage in their respective Counties, but regret to have to report that only three of those gentlemen so addressed have honored this Committee with a reply. Of this number Dr. B. F. Kilgore, who has for a number of years past had the subject of County drainage under consideration and still manifests a deep and abiding interest in the same, writes as follows:

"In regard to the drainage of Warrior Creek, of which you seek information, I am prepared to answer that I live only a few miles from Warrior Creek and have been familiar with that section of the County for the last thirty years.

"In the year 1878 some half dozen farmers on said creek united as a company and applied to the Penitentiary and obtained about forty-five convicts, at $3 per month, and in September or October began operations, and by Spring ditched said stream for eight or nine miles. The stream was very much obstructed, and, being a pretty large and crooked creek, had upon it a large quantity of low and wet bottoms, much entirely unfit for cultivation and a fruitful source of malaria. For thirty years I have known this stream to have been one of the most sickly in our up country. The result of the eight miles ditching was the reclamation of large quantities of fine bottom lands and the County entirely relieved even the first season and since of malarial disease. It is now as healthy as the ridges, and perhaps no stream of its size in the County produces more corn. The benefits to the County in a sanitary point of view are not to be estimated, and in an agricultural point of view very great. The convicts were procured at $3 per month, and it was a blessing to them and the State to take them, as it were, at a time when they were nearly starved—just after the Radical *regime.*

"The cost of the whole work was small. The data are not before me, but I presume $800 or $1,000 would cover all expenses.

"I have for a long time believed our convicts would be better employed on railroads and draining our up country streams and leveeing the larger

streams in the low country than in any other way. We have thousands of acres of the very richest lands in our State now unfit for cultivation and only the hot bed of malaria. This leveeing is practical, and the increased wealth to our State we cannot estimate.

"Now a large force is employed and will be for ten or fifteen years on the grand canal, the pride of Columbia, which I don't object to, but it is to benefit the Yankee and a few Southern associates more than the State.

"In regard to convict labor and its use or abuse in the up country work, I can state that we have only about fifty convicts employed on the Laurens Railroad, and about the same number on the Georgetown Railroad, and this very small number we are not allowed to keep without much interference by others. The great "*hella-belleau*" and exhibition of *grandophilanthropy* gotten up by the press of certain sections of the country is all unnecessary and nonsensical, and in the interest of certain individuals who wish to make financial capital on the one hand and political influence on the other.

"I know the great outcry against the treatment of convicts on the Laurens Railroad was unnecessary and much exaggerated. Being one of the Directors, I know all about it. There are no convicts better treated or cared for. I have sometimes been physician for the camp and know whereof I speak.

"We must get our up country members worked up and let certain localities and individuals know that the balance of South Carolina—its interests materially and the health of its people—are not to be ignored entirely for the sake of the grand canal and others associated with it. The people in their power, if properly informed, may before this fifteen year job is done place it on the same hob of the Blue Ridge Railroad and let it rest and sleep a long Rip Van Winkle sleep."

"I have for some time past been doing all I can to get our people up to thorough and efficient draining and think I have done something in that way. Anything I can do to co-operate with you in this direction I will do cheerfully, as I regard it a matter of most vital importance."

Dr. T. E. Nott of Spartanburg writes:

"I have never given much thought to this matter, not being interested in it as far as this County is concerned, but of course I concur in your opinion relative to the sanitary as well as the financial benefits arising from thorough drainage of our bottom lands.

"You know there was a law passed by our Legislature with regard to draining bottom lands which could be taken advantage of by any County applying for it. Spartanburg County received the benefit of the law, and I know lands that were drained under the law, thereby reclaiming hundreds of acres of valuable lands, and I have understood

improving the health of those places. We have not in this County much swamp lands, but I think the present law, if properly enforced, would be of great service in York County. I don't know that I could be of any assistance to you in this matter, but would willingly do anything I could to promote the object you have in view."

Dr. E. W. Aiken of Winnsboro writes as follows:

"The contents of your letter addressed to me a month ago and your article on the 'Report of the State Board of Health for 1881' embrace suggestions and ideas that are wise and patriotic, and I cannot improve upon them.

"It affords me pleasure to give you what late information and aid I can, in order that your may see how your notions and plans, if properly carried out, would in at least those portions of Fairfield County sweep clean fifty odd miles of filthy bottoms, where germs prolific for disease now luxuriate.

"I will estimate for you the happy effect that proper drainage would have along the streams of this County, where malarial diseases in their severest forms are most frequently met with:

"These streams average eighteen miles in length, and the bottom lands along beside them one-fifth of a mile in breadth. I can suggest no plan that is preferable to yours for utilizing convict labor. It seems to me that to levy a small tax upon those whose lands are specially benefitted by drainage is the most equitable way for the State to be recompensed for the service of her convicts.

"Within this area there are 6,827 acres, that could be wonderfully improved by drainage, and from which could be easily made 307,215 bushels of corn, while at present this land does not produce over 30 bushels per acre, which would give, as the result of drainage, an increase of 192,405 bushels.

"There is on Jackson's Creek alone at least 2,700 acres that could be reclaimed by proper drainage, that would add thousands of dollars to the landholders and render happy and free many constantly shaking and cadaverous subjects, who are the annual victims of the never-failing and somewhat peculiar fever of this particular locality, a brief reference to which you can see in the 'Report of the State Board of Health' for 1882, over my signature.

"You have asked me to give you my views upon a subject I have never thought really much about, and whilst I am unable to offer any original ideas on the same, still I deem your plans feasible, and certainly humane; for the happiness, prosperity, physical enjoyment and prolongation of life that would result from drainage to thousands throughout the up country would be an everlasting monument of praise to those who have

thus checked 'malaria' and have displayed an affection and interest in the welfare of their fellow creatures truly to be admired.

The law lately enacted by the General Assembly on the subject of County drainage, but with a view to the increased production of the soil and the improvement of the health of the Counties, is intended for an honest and useful purpose. When we come to analyze and unfold the elements entering into the composition of this law, we find that, however much we may appreciate the object of the law as it now stands, there are many grave objections and serious difficulties in its execution which neither County Commissioners nor any other County authorities can surmount and bring into practical bearings. It confers upon the Commissioners of the County all the powers and privileges apparently necessary to begin and complete the drainage of the County to the entire satisfaction of themselves and the people of the same. It authorizes the Commissioners to levy a tax upon all landholders along the course of a stream when one-third of them desire to have the stream drained, without inquiring or considering whether or not all such landholders have the ready means to pay at once and finally the debt, or their proportion of it, arising from the construction of such work without much financial embarrassment to themselves. They are clothed with the power to prepare for the work without taking into consideration at all the most difficult part of the whole undertaking. That difficulty is the question of labor. Where will the landholders along these creeks and swamp lands which they desire to have drained, or the Commissioners of the County themselves, find the labor necessary to begin and complete this work, outside of the Jail or Penitentiary, ready and willing to engage in the same even under the most reasonable terms? Such is the demoralization, the great uncertainty, now of free labor in the whole State, that to commence such an enterprise with such labor would only be crowned with an entire failure; because all labor is irksome to them, and especially the kind of labor necessary in this enterprise, and therefore it would be not only difficult but morally impossible to induce them to engage in contracts for same, and still more so to persevere and continue in the same either by persuasion, reason or legal action, until the whole work shall have been completed in a successful and satisfactory manner.

In addition to these difficulties, the work, whether begun and completed by free white or black labor, must be settled up weekly or monthly. Without such conditions of payment so expressed and contracted for, no such work would be undertaken by free labor. Such a condition of payment would oppress many poor men who possess small tracts of land along those creeks, but have not the financial means by which to meet contracts made on such terms.

These premises being granted as true, rational and logical, the question still presents itself, where will the landholders along these creeks or swamps, or the Commissioners of the County, obtain the labor necessary to begin and persevere in this work until it shall have been satisfactorily completed? There is but one answer to the question, one solution of the whole difficulty. The only reliable character of labor (reliable because under penal control) upon which to depend for beginning and completing this enterprise will be found alone among the convicts of the State Penitentiary and the prisoners of the County Jail.

In the near future, judging from the signs of the times, objections, either on true or false basis, may be made to the employment of convict labor outside the walls of the Penitentiary for fear of bodily injury, or abuse by excessive daily labor, without due regard to the comfort and health of such labor.

In answer to such objections, the Sub-Board of Health of this County have always been taught, and they are now more especially reminded of the fact, based on their hard experience, that air, food and water constitute the tripod of health and life, and would here supplement the same by adding ordinary labor or exercise in that same fresh, free, pure air—just such air as the white man has breathed and just so much of that same ordinary daily labor as many good, honest white men long before the present day have cheerfully performed, with comfort to their bodies and honor and credit to their characters.

Again, the Sub-Board of Health for this County would remind these objectors that, whilst they duly appreciate the mechanical, manufacturing and commercial interests of the State, they cannot ignore the fact that the agricultural interest of the State is paramount and stands high above all other interests. This constitutes the basis of her true and progressive prosperity. From this source arise all other branches of trade and business; curtail, retard and oppress this interest, then you will dry up the streams and efface the channels of all other pursuits in life.

We would also remind these objectors that persons, white or black, convicted of theft, burglary or arson and sentenced to hard labor in the Penitentiary, whilst humanity would secure and extend to them every reasonable means for their health and comfort, cannot expect to be clothed in satins, silks or broadcloth or indulge in hours of ease and luxury and sleep on beds of roses within the walls of the Penitentiary, but that they are placed there to atone for the violation of the State law, and whilst there are expected to labor to such degree as not to make themselves a tax and burden to the peaceful, honest, industrious citizens of the State.

Let the agricultural interests of our State be fostered and encouraged. Let every obstacle to her progress and advancement in this department

of art and science be removed. Let the proper authorities of the State extend to those engaged in agriculture along the streams in our County all reasonable financial aid in the way of labor necessary to the reclamation of her swamp lands and the restoration and preservation of the health of her people. Then, instead of a wide waste of uncultivated, useless lands, grown over with the wild grasses and covered nearly the half of the year with water, mud and slush, we will have presented to us the more pleasing and cheering aspect of extended fields of rich bottom lands well drained, glowing with living green, promising a most abundant harvest of cereals, and giving health, comfort and happiness to the people of the County and supplying them with sufficient food for their consumption, whilst the large surplus remaining on hand would be equal, if not greater, in value than the whole cotton crop of the County.

Over such a pleasing, welcome scene as this the surrounding forests would clap their hands with joy unspeakable, whilst the neighboring murmuring brooks, catching up the wave of sweet inspiration, would re-echo the cheerful sound, "Rejoice!"

The Sub-Board of Health for York County propose (if permitted) in their next annual report to make and present to the Executive Committee of the State Board of Health an estimate of the probable number of cubic yards to be excavated in each creek in this County and the rate of charges per yard for excavation, and thus be enabled to reach a satisfactory conclusion as to the cost of the whole work under contemplation in this County.

Respectfully submitted.

J. R. BRATTON, M. D.,
A. J. BARRON, M. D.,
COL. WM. H. McCORKLE,
Sub-Board of Health.

CHARLESTON COUNTY.

MOULTRIEVILLE.

MOULTRIEVILLE, September 24th, 1883.

DR. H. D. FRASER, *Secretary State Board of Health.*

DEAR SIR: Since my last annual report there has been but little change in the health status of this town. The population varies greatly with the season. During the Autumn, Winter and Spring months the number of inhabitants does not exceed three to four hundred, but as soon as the hot weather prevails the place rapidly fills up, and every house that can be rented is occupied. The past season the influx commenced

with a great rush in June, and at no previous time has our Island been as thickly peopled. The Summer population, therefore, was estimated at twenty-five hundred to three thousand. We have four prominent boarding houses, the Moultrie, the Sinclair, the Bowen and the Cohen, besides others strictly more private. Where all are excellent it would be invidious to discriminate, but suffice it to say that they were all patronized to the extent of their capacity. Indeed, such was the demand for board accomodations, that a company is now forming to build a much needed large hotel.

There has been, as well as can be ascertained, no case of malarial fever here this season with one exception, and of that no official information was given. Rumor assigned the instance to the last house but one on the Eastern limit of the town. Case terminated favorably.

We have had great falls of rain several times this Summer and on one occasion water did remain in low places, so much so as to call for the use of the spade pretty extensively; but notwithstanding this unusual deluge, it is a melancholy fact, professionally speaking, that the health has been nearly perfect. Were it not for the ladies having maternal proclivities, and the blessed babies who will occasionally have troublesome dentition, a physician could put all the profits of his calling into his wife's thimble and cover them with a five cent piece. In former years there was a large section of the Island call "The Myrtles," and it was thought then that one night passed near that locality would ensure an attack of malarial fever. This section was grown up with a dense undergrowth, which has gradually been diminished under the strokes of the axe, and has allowed the sand to drift and cover up large portions of it, making the Eastern end of the town as healthy as any other part. The house built by the late C. C. Bowen at the Eastern limit was kept as a boarding house this Summer, and we are not aware that any physician had a call there. One word more as to the great sanitary effect of the air on the Summer diseases of children. There were many cases of the above character from the city, the neighboring country, from the middle and upper Counties of this State, and also from Georgia. In every instance known to us has benefit been derived, and in a number great, positive and permanent relief was afforded. We would, therefore, heartily recommend to our fellow citizens of the interior the wonderful therapeutic agency of the sea air in the above affections.

All of which is respectfully submitted.

ALFRED RAOUL, M. D.
Chairman Moultrieville Sub-Board.

CITY OF CHARLESTON.

ANNUAL REPORTS 1882, DEPARTMENT OF HEALTH OF THE CITY OF CHARLESTON, S. C.

DEPARTMENT OF HEALTH.

This most important branch of the public service has been administered with marked intelligence and energy during the past year, and although the larger measures of sewerage and the inspection of meats for our markets remain another year seemingly neglected, it is not chargeable to this Board, who are alive to the need of a change in both respects, but rather to the apparent indifference shown by the general community to measures certainly attainable and promising large results in the future in their influence on the health of this growing community. When it is realized that we have over six thousand vaults in our midst, that there is annually expended for cleaning them a sum of money approximating in amount an annual interest on the $300,000 of capital necessary for complete sewerage; when we know that the ocean flows and ebbs in and around us twice every twenty-four hours, that we are not located on a small, sluggish river, as some cities are, it is most extraordinary, with our mortuary statistics for constant admonition, that the citizens of a city so favorably located for complete cleanliness should remain longer inactive on such a subject. A private corporation with a capital of $300,000, with an ordinance fixing reasonable charges for this service of cleanliness to each house and compelling its general adoption throughout the corporate limits, is a practicable engineering work, and, with even moderate charges for its use, may be safely commended as a sound financial scheme. This measure has been so fully put before our public in former reports of the Board of Health and by myself, that details are unnecessary here, and I now urge it again as a measure of the highest public importance.

Nothing has been done in the matter of regulating the slaughtering of meats for our markets since the memorial of the City Council was sent to the General Assembly at the session of 1881, praying authority to establish a public slaughter house for the protection of this community from diseased and unfit meats; a Bill was introduced in the Legislature to this end, but a few persons interested in the present system, which is not under inspection, making objection, the delegation from this City allowed this legislation to fail, and it has not since been mentioned in the General Assembly. As it has been decided that the City Council required legislative authority to proceed in this matter, it has not been possible since for them to take the action they desired.

I am pleased to be able to say that the quarantine was efficiently maintained during the year, and that the only pressing need is the permanent support of the refuge station at Sapelo Sound by the Federal Government. When this is done and vessels with sickness have no longer a claim to enter our port on the plea of humanity, with the cleanliness which a proper sewerage system will give, and the more thorough dispensary service among our sick poor, there is no reason why Charleston should not compare in health with the most favored cities. It will be noticed by the very full and excellent Report of the City Registrar, hereto annexed, that the scavengering of the city has grown to large proportions, and so far as the surface of the city is concerned it has been kept clean daily. The saving in the cost of disinfectants is also marked. For other details reference to the Report would be most satisfactory.

With the opening of the new year an important change is being made in the dispensary service of the city, looking to greater efficiency in the attendance on the sick poor and a more thorough system of supplying medicines. As these measures have been only recently presented in full to our citizens, and the new ordinance will accompany this review, it is not necessary to do more than express the hope that the gentlemen who will be elected to initiate and carry forward this humane scheme for the sick poor, which promises advice and a full supply of medicines, will illustrate by their conduct those high qualities which have always characterized the medical profession of Charleston—a willing, ready and effective response to every call. Instead of a single vaccinator for the whole area of the city, this duty will be divided among the four Dispensary physicians. This plan, about to go into operation to reach the sick poor of our city, is comprehensive, and, successfully administered, will place Charleston much in advance of all Southern cities in this branch of our health service.

Appended to the Registrar's report is a valuable and suggestive paper from Dr. Prioleau, the Dean of the Medical Faculty, on the subject of midwifery practice in this city among a certain class. We have a large ignorant population in our midst who require protection in this particular work. It is lamentable that at this writing so serious a responsibility should be absolutely in the hands of uneducated and mostly ignorant persons. I most earnestly commend the suggestions of Dr. Prioleau's report to the attention of the City Council, and have confidence that such remedial measures as may be undertaken will meet with the unanimous approval of this enlightened community.

REPORT OF CITY REGISTRAR.

DEPARTMENT OF HEALTH,
CHARLESTON, S. C., December 31, 1882.

To the Honorable the Mayor and Aldermen of Charleston.

GENTLEMEN: I have the honor to present for your consideration the vital statistics and meteorological observations, for the year 1882, of the city of Charleston, together with the various procedures of this department.

The city is to be congratulated on the good health of the population during the past year. We have been free from epidemic disease. There have been fewer deaths—two hundred and seventeen less in 1882 than in 1881; and the ratio of deaths per one thousand among the whites being 22.32, places Charleston, as far as the whites are interested, in a most favorable aspect by comparison with the cities of the Union.

The Board of Health was organized for work March 2, 1882, composed of the following members: John Hanckel, Chairman; M. Michel, M. D., F. P. Porcher, D. D., Allard Memminger, M. D., G. E. Manigault, M. D., Wm. Thayer, Wm. Ufferhardt, J. L. Tobias, C. P. Aimar, R. M. Marshall, P. C. Trenholm. Hon. Wm. A. Courtenay, Mayor, attended this, the first meeting, and addressed the Board as to the duties and responsibilities of the body, especially dwelling upon matters of quarantine, sewerage and the inspection of meats.

QUARANTINE.

On March 9th, R. Lebby, Jr., M. D., reported for duty as Quarantine Officer under appointment of His Excellency Governor Johnson Hagood. By the provisions of the Act of the General Assembly ratified December 20, 1881, the administration of quarantine of the port of Charleston was placed under the control of the Board of Health of Charleston. This service has been well and efficiently carried out. R. Lebby, Jr., M. D., the Quarantine Officer, has been zealous and faithful. The Quarantine Committee of the Board of Health have adjudicated such matters as have been brought before them, and the great cause for satisfaction exists that no pestilence has been brought into the city.

Where required thorough fumigation, disinfection and cleansing have been carried out, and no ballast from any infected latitude has been allowed into the city. During 1882, from April 1st, there have been two hundred and sixty-eight arrivals and examinations at the quarantine station. An effort was made early in April to secure telegraphic communication with the station at Fort Johnson in conjunction with Morris Island light house; it is to be regretted that so far it has not been successful. I would earnestly urge that this important link for the effective adminis-

tration of quarantine be carried out. On March 22d the Board of Health ordered printed the rates of charges for quarantine procedure, authorized by Act of the General Assembly, together with rules for governing quarantine, herewith furnished. These charges and regulations, by agreement, govern the ports of Georgia and South Carolina, and have proved entirely satisfactory:

QUARANTINE RULES OF BOARD OF HEALTH.

CHARLESTON, S. C., April 1, 1882.

From and after this date the following charges and rules for the government of quarantine at this port will be enforced:

ACT OF THE GENERAL ASSEMBLY, RATIFIED DECEMBER 20TH, 1881.

SECTION 4. The following uniform schedule of charges is hereby adopted for quarantine dues for all ports of the State, the amount collected to be expended for the more effective enforcement of quarantine at each port, to wit:

For every vessel boarded and inspected, $5.

For every vessel of 100 tons or less, fumigating and disinfecting, each process, $15.

For every vessel over 100 tons and less than 250 tons, fumigating and disinfecting, each process, $20.

For every vessel over 250 tons and less than 500 tons, fumigating and disinfecting, each process, $30.

For every vessel over 500 tons and less than 750 tons, fumigating and disinfecting, each process, $40.

For every vessel over 750 tons and less than 1,000 tons, fumigating and disinfecting, each process, $50.

For every vessel over 1,000 tons and less than 1,250 tons, $60.

For every vessel over 1,250 tons, fumigating and disinfecting, according to tonnage of vessel, each process, $70 to $100.

In all cases the Quarantine Officer will collect the charges made against vessels before giving permission to leave quarantine, either by Captain's draft on consignee, or in currency, and shall return the same to the Board charged with the administration of quarantine at such port, who shall be responsible for the disbursement of the same.

I. On and after the opening each year of the National Quarantine Station (Sapelo Sound) all vessels from infected or suspected latitudes arriving with sickness on board, or having had same during voyage, must be directed by the pilot to proceed to said National Quarantine Station.

II. Any vessel arriving at this port bearing the certificate of the National Quarantine Officer must be brought to anchor at the quarantine station, and there remain until released by the order of the Board of Health.

III. During the closure of said National Quarantine Station all vessels such as above described must anchor at the Port Quarantine Station, under personal direction of the Quarantine Officer.

IV. Vessels from any foreign port direct, or *via* American ports, with or without sickness on board, will, during the entire year, be compelled to anchor and remain at the quarantine station until released by written permit of the quarantine officer.

V. All vessels arriving at this port with sickness on board, or having had same during voyage, will, at all seasons of the year, no matter from what port, either American or foreign, anchor at the quarantine station, and there remain until released by order of the Board of Health.

VI. Vessels from infected or suspected latitudes will, during the entire year, be required to discharge any and all ballast at the quarantine station or such other place as may be designated by the health authorities, to have bilges and limbers cleaned and sweetened, and from November 1st to May 1st of each year be subjected to at least one fumigation, and from May 1st to November 1st of each year be subjected to at least two fumigations and such other disinfection as may be necessary, and be detained at least fifteen days.

VII. On and after May 1st and until November 1st of each year, and longer if the Board of Health so determine, all coastwise vessels or steamers from latitudes South of Cape Hatteras, other than those by inland route, must anchor at the quarantine station. Steamers and vessels from non-infected or non-suspected ports will not be detained longer than necessary for the Quarantine Officer to satisfy himself of their perfect sanitary condition. Vessels from infected or suspected latitudes will have to comply with Section 6, be fumigated at least twice and detained at least fifteen days.

VIII. Coastwise steamers and vessels arriving at this port by inland route from latitudes South of Cape Hatteras between May 1st and November 1st, and later if the Board of Health so determine, must be inspected and given permit by the Quarantine Officer before the landing of either passengers or freight.

IX. From May 1st to November 1st of each year, no vessel from an infected or suspected latitude will be allowed to either lighter or bring cargo of fruit up to the city.

X. Pilots must in each case before boarding make inquiry as to the

sanitary condition of vessels. In no case must they board if the vessel has sickness on board or has had same during voyage. In such cases they must either direct to Sapelo Quarantine Station, lead the vessel in, or have their small boat hoisted alongside clear of the water, and in this way pilot the vessel in.

H. B. HORLBECK, M. D,
City Registrar and Secretary Board of Health.

NOTE.—Sections VII and VIII will not be enforced unless specially ordered.

THE NATIONAL BOARD OF HEALTH.

On April 12th the Secretary read a circular letter from J. L. Cabell, M. D., President of the National Board of Health, requesting the support of South Carolina in having the law re-enacted for continuing the National Board of Health. The following letter was at once forwarded to the Senate and House of Representatives of the United States, and, through the influence of Hon. Samuel Dibble, was put upon the Journal of the House of Representatives:

CHARLESTON, S. C., April 12, 1882.

To the HON. DAVID DAVIS, *President of the Senate, and to the* HON. J. WARREN KEIFER, *Speaker House of Representatives.*

GENTLEMEN: The Board of Health of Charleston, realizing the great utility and successful labors of the National Board of Health in the cause of hygiene and proper quarantine, request that the law of June 2d, 1879, defining the duties of the National Board of Health, &c., be re-enacted at its expiration; and they further most earnestly urge that the Sapelo Refuge Quarantine Station be continued, for the prevention of the introduction of infectious diseases into the ports of Georgia, South Carolina and Florida, and most especially guarding, as it does, against the danger of yellow fever. Yellow fever requires no pen now to force recognition of the consequences of its evil presence.

Sapelo Refuge Quarantine Station receives all vessels bound for ports of the United States which may have a contagious disease on board, and, moreover, serves as a point to which any vessel in a port of South Carolina, Georgia and Florida may be sent upon which a case of yellow fever or infectious disease breaks out.

The quarantine regulations of the ports of South Carolina, Georgia and Florida now are framed with reference to the utilization of Sapelo Station. It is now requested that no legislation be framed which may in any way interfere with the continuance of Sapelo Station. It is requested that Sapelo Refuge Quarantine Station be thoroughly equipped

and suitable buildings erected, that it be made a permanent station, and kept open during the Winter as well as the Summer months.

JOHN HANCKEL, Chairman.

Official:

H. B. HORLBECK, M. D., C. R. and Secretary.

The following endorsement of His Honor Mayor Courtenay was added:

CITY OF CHARLESTON,
EXECUTIVE DEPARTMENT, April 13, 1882.

I regard the opposition to the National Board of Health as unwise and prejudicial to the complete sanitary supervision which, to be successful, must be general in its operation. The Sapelo Refuge Quarantine Station is the most beneficent feature of the administration of the National Board, from the point of view of the South Atlantic seaports of the Union, which before this wise provision were constantly imperilled by ship arrivals with disease aboard, which could not be refused assistance in their harbors. I earnestly urge the continuance of the National Board of Health and the Sapelo Refuge Quarantine Station.

WM. A. COURTENAY, Mayor.

The above paper met with the approval of T. G. Simons, M. D., Chairman Quarantine Committee Executive Committee State Board of Health; B. W. Taylor, M. D., Chairman Executive Committee State Board of Health, and Governor Johnson Hagood.

On the 20th of July, the Board of Health having received notice of the immediate closing of Sapelo Refuge Quarantine Station by the National Board of Health, from the want of sufficient appropriation from Congress, determined, by the advice of Senators Hampton and Butler, and the concurrence of Mayor Courtenay, to send their Secretary, H. B. Horlbeck, M. D., to Washington, to use every endeavor to have Sapelo kept open during the Summer. Dr. Horlbeck visited Washington and made full representation of the vital necessity of Sapelo Station being kept open. These representations were received with great interest, the mission was successful, and Sapelo was kept open during the active quarantine season.

DISINFECTION.

The preparation for the use of disinfectants during the Summer months was maturely considered by the Board of Health, at their meeting April 12th. A supply of proper material was procured, and on May 1st the gutters and gratings were commenced to be well and effectively disinfected. A continuous supply of the best form of fluid disinfectants

(formula furnished by Dr. Allard Memminger, a member of the Board,) was kept constantly on hand, and during the active season of disinfection, from May 1st to October 1st, over a hundred thousand gallons were distributed over the streets, and to vaults and private houses and drain gratings, and this at a cost of $835.34.

Disinfection cost in 1879	$8,583 62
Disinfection cost in 1880	3,571 77
Disinfection cost in 1881	2,057 25
Disinfection cost in 1882	835 34

It will be seen that disinfection cost ten times as much in 1879 as in 1882, and it is believed that for all practical utility the system as carried out in 1882 will compare favorably with 1879. All premises where infectious diseases occur are fumigated with sulphur and disinfected. One hundred and twenty-nine premises were fumigated and one hundred and forty-one disinfected in 1882.

SCAVENGERING.

During the year 27,084 loads of garbage were removed from the city. The present arrangement works very well, the administration being under the control of this office. A daily written report is made by the Sanitary Inspectors to the Registrar, and all neglect or inattention immediately sifted—the Superintendent of City Carts reporting daily for instructions. The result has been that the streets have been kept very clean and garbage promptly removed at an early hour in the day.

NIGHT SOIL.

It would appear to be a commentary on progress that each year we should record so many vaults cleaned—unhealthy, and in some cases death-dealing centres, whose places should be taken by water conduit. The problem would appear to be dependent upon water, and in Charleston at least 1,000,000 gallons daily would be required. I am aware that the matter is and has been receiving the most earnest attention of this administration, and I cherish the hope that as other great reforms have been effected, so this greatest of nuisances will be relegated to the past.

There have been 640 vaults cleaned in 1882. The system in use at present is to have every night soil barrel examined each month. All leaky vessels are forbidden, and cleaning of vaults is only allowed in the day, and sulphur burning is generally used, which relieves offensive odor.

VACCINATION.

There have been 3,733 parties vaccinated by this Department in the past year, 509 whites and 3,224 colored; this at a cost of sixteen cents apiece, which cannot be considered a large figure.

I regard it as a very important measure that this service should be continued. Vaccination has been of incalculable service to mankind and we should surely take advantage of its opportunities.

Charleston, by judicious firmness and enterprise when smallpox made its appearance last year, was saved from the horrible havoc to which so many sister cities are subjected. Although twelve cases occurred in eight different localities the disease was stamped out. Vaccination, fumigation and fire was used with no uncertain hand.

SANITARY INSPECTORS.

The city is divided into four health districts, two wards in each. There are four Sanitary Inspectors, one of whom is assigned to each health district. It is their duty to visit at least fifty premises each day, and they are required to be present each day at this office at 12 M. and make a written report, on suitable blanks, of all work done during the preceding twenty-four hours, the earlier portion of the morning being devoted to supervising the removal of garbage. Many thousand nuisances have been reported and have been noted, and, when possible, immediate relief afforded. Full vaults, foul drains, uncleanly premises and choked laterals and gutters are matters of daily report and quick attention; but I regret to state that quite a number of low lots requiring filling are on file. Much has been done and in time most of these nuisances will disappear.

FINANCIAL.

The amount of $13,500 was appropriated for the use of the Board of Health in 1882 and was expended as follows:

Six Physicians to the Poor, at $600 each	$ 3,600 00
Seven physicians, including Shirras, at $200 each for medicine	1,400 00
Salary City Registrar	1,500 00
Four Sanitary Inspectors, at $600 each	2,400 00
Clerk	600 00
Vaccination	600 00
Health Detective, horse and service	890 00
Amount carried forward	$10,990 00

Amount brought forward	$10,990 00
Pest house	23 75
Telephones	186 00
Pipes and faucets introduced into city lot	42 98
Disinfecting Department	835 34
Stationery and printing bills of mortality, annual report, &c., with books for reference	752 95
Miscellaneous and furnishing office	625 73
	$13,456 75
Balance with City Treasurer	43 25
Amount appropriated	$13,500 00

MIDWIFERY PRACTICE.

The matter of a better administration of the midwifery practice among our colored population in this city has been earnestly discussed from time to time. I forward a very suggestive report from J. Ford Prioleau, M. D., Dean, on this subject, to which I would ask your earnest consideration.

The subject is one of very great interest and commends itself to every thoughtful mind as to the issues involved, where dense ignorance and incapacity have full sway over the most critical period of existence; short though the time may be, yet long enough to swell our yearly reports with still-births and *trismus nascentium* and occasion often deadly peril to the child bearer.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA,
CHARLESTON, S. C., December 31, 1882.

GENTLEMEN: The Committee appointed by the Faculty to prepare a plan by which the education of midwives can be improved (as requested by the City Board of Health) would respectfully report:

That they fully recognize the necessity of such action, and assure the Board that they will give all the assistance they can for the furtherance of the object.

The Faculty, while realizing the necessity of protecting the people, do not, however, think that a scientific education should be attempted. With the condition of the population here, such an education is not required, and the attempt to bestow it would perhaps result in still further increasing the already great danger to the lying-in woman and her offspring by inspiring a misplaced confidence in the attendant, predicated upon the education and the license obtained by the midwife from the Board.

In their opinion, the education which should be given should not include a culture which would lead to the attempt to manage severe and complicated cases or induce midwives to regard themselves as capable of undertaking the control of such cases.

As they understand it, the Board of Health likewise contemplate that midwives should be prepared to practice in this city only, where medical assistance and advice is of easy access.

The duties they will be called upon to perform under these circumstances pertain more properly to the monthly nurse than to midwives, such as are educated in Europe.

The Faculty think the kind of knowledge which should be provided for and demanded from them before they should be permitted to obtain the license is such as attendance upon natural labor when uncomplicated; such required for the care of the woman during the month; resuscitation of the child, should it be necessary, and dressing the cord, with after attendance upon the infant; and also that degree of knowledge which will enable them to recognize the dangers which threaten both the woman and child prior to and after delivery, so as to know when to obtain assistance.

To point out a way by which such an education is to be provided is by no means an easy matter, for it is one which, in the majority of instances, will have to be bestowed upon the illiterate, and this, unfortunately, will be the case for several years to come.

To insist upon such attainments will, no doubt, be vigorously resisted by them, so that in the plan must be included a municipal ordinance (if such be legal at the present time, and, if not, an enactment from the Legislature,) giving this power. [See General Statutes, pages 228 and 737.]

The Faculty would, therefore, recommend this plan, or one resembling it, by which such an education can be inaugurated—one capable of modification and expansion should time and the changing condition of the people demand it:

1st. That the Board of Health of the city of Charleston, S. C., obtain at an early day from the Board of Aldermen the power to grant licenses in midwifery for the city.

2d. That at a stated time, not far remote, every person who desires to practice midwifery for a compensation shall be required to obtain before doing so a license from the City Board of Health.

3d. That the Faculty of the Medical College of the State of South Carolina appoint two instructors in midwifery from the members of the medical profession, whose duties it shall be to give instruction (under the supervision of the Faculty) to those requesting it; to examine each

applicant for license in the presence of a member of the Faculty, who shall be appointed by them for that purpose, and who shall, if the examination be satisfactory, recommend the applicant to the Board of Health, stating the grade of the license recommended; the examinations to be made at certain fixed dates, notifications of which are to be duly published.

4th. That the two instructors, together with one member of the Faculty appointed by the Faculty, and one member of the Medical Committee of the City Board of Health appointed by that Board, be commissioned to draft the details of the plan of instruction, which draft is to be submitted to the Board of Health and also to the Faculty, for consideration, amendment and ratification.

5th. That as this plan is experimental, it shall terminate whenever desired by either party, upon the due notice of three months being given.

6th. That a salary of, say, $200 at least shall be given by the Board of Health to each of the two instructors in midwifery, and also the consent and approval of the Board to the instructors to avail themselves of any conveniences which may arise for clinical instruction to senior students in medicine. This, with the view on the one part for greater facilities in medical education, and on the other for increased compensation to the instructors. The attendance of the students to be placed under the direction of the Faculty.

7th. That the Faculty of the Medical College furnish a room in the Medical College building, Queen street, as the place of instruction, if agreeable to the Board, and any expense contingent upon the course shall be borne by the Board.

8th. That the Faculty appoint the two instructors annually, whose term of service shall be until other appointments be made.

The details of the plan of instruction, roughly outlined for the consideration of the Board by the Faculty, will probably be:

1st. Division of applicants into two classes, white and colored, with instruction for each by each instructor alternately.

2d. Length of course. Date of examinations.

3d. Plan of instruction—didactic, demonstrative, clinical.

4th. Restrictions for midwives, with penalties should they attempt operations, &c., and the disregard or disobedience of such orders as the Board may impose.

5th. Licenses to consist of three degrees:

(*a.*) To be given to those capable of undertaking complete control of midwifery cases.

(*b.*) To be given to those permitted to act under the direction and advice of a physician, he visiting the patient perhaps but once. This class to be compelled to report to some physician whenever they are called

upon, giving the name and residence of the woman, and specifying the time at which they were first called.

(c.) To be given to those who are permitted to do duty as nurses only, and not to be with a woman during her labor, except with a physician who takes upon himself the entire responsibility of the case.

6th. To arrange with the Commissioners of the City Hospital and the city physicians for facilities in the clinical instruction of midwives.

7th. To define the sphere of the duties of the monthly nurse, those who are not required to obtain a license from the Board of Health.

8th. To determine the powers of each of the classes of midwives; to give certificates of birth and also of still-births. (?)

Upon such data as these, amended, amplified and modified as they will be by the Commission, the Faculty are of the opinion that a course of instruction may at this time be inaugurated, and which may be improved as time or experience may suggest. They, therefore, having considered the report of their Committee, and it having met with their approval, respectfully recommend it to the Board as their own in accordance with a request from that body.

J. FORD PRIOLEAU, M. D.,
Dean and Chairman.

AMERICAN PUBLIC HEALTH ASSOCIATION.

I herewith forward my report of a visit to Indianapolis, to attend the tenth annual session of the American Public Health Association. The report embraces several matters of sanitary interest, especially in reference to the action taken there as to the National Board of Health. I deem it a matter of the greatest interest that such a body should exist as free as possible from political bias, and having a most liberal appropriation for the investigation of disease and the publication of the results of the same:

To the Chairman and Members of the Board of Health of Charleston.

GENTLEMEN: I have the honor to submit the following report of my attendance upon the tenth annual session of the American Public Health Association, held in Indianapolis, October 17, 18 and 19 last.

This meeting was attended by about one hundred and fifty members, and it was remarked that there were more distinguished sanitarians among the number than had been noticed at any previous meeting. Much interest was manifested and constant, unremitting work characterized the proceedings—morning, afternoon and evening sessions being daily held.

President R. C. Kedzie, M. D., of Michigan, delivered his annual address and indicated the objects of sanitary science, which he said included everything that can prevent disease and thus promote the public health.

Public sanitation, which implies preventive medicine, touches every home and hearth, the highest and the lowest being all intensely interested. Its end is to improve and to preserve man's body in the best condition.

It would appear from the statistics of England that the death rate there in twenty-three and a half years has been reduced 12.2 per cent. in urban and 8½ per cent. in rural districts; beneath these figures lie the joy and happiness which flow from the expansion of human life.

The improvement of all the lower forms of life, both animate and inanimate, has been the result of direct interference on the part of man. If man would give a corresponding attention to the development of his own race by careful attention to the laws of heredity and a wise control of his environment, might not as striking results be achieved as in stock breeding? Among the causes of hopefulness in the future in sanitation are an extension of knowledge of zymotic diseases, such as splenic fever, charbon and chicken cholera in domestic animals, and of diphtheria in human kind. All infectious and contagious diseases must soon be brought into the same category: prevention of these diseases by extension of the method of innoculation. The discovery of the baccillus, which is the cause of consumption, by Dr. Koch, of Berlin, is an epoch. Consumption is the cause of one-seventh of the deaths of the human race and one-third of the deaths of active life. If science shall stretch forth only the hand of prevention, what a boon! If it shall reach out and heal, and guard as effectively from consumption as it has done from smallpox, what a shadow will be lifted! The great and increasing number of Health Boards, and their awakened interest, is another cause of hopefulness. What great good work has been done by the Sanitary Council of the Mississippi Valley! In two years, without funds or patronage, the Council have put down shot-gun quarantine and kept the Valley of the Mississippi open to commerce and travel, but closed against pestilence. Among the discouragements of sanitation the painful conviction abides that a fearful blunder has been made in crippling the National Board of Health and the folly committed of changing front in presence of the foe. Smallpox has been pouring in with emigration, yellow fever has been wasting communities, and cholera has roused up from its lair in the jungles of India. We thus see that light and shadow alternately flit across our landscape, but the light grows stronger and the shadow less sombre. With wider knowledge and more general enforcement of sanitary law, diminution of infant mortality and expansion of human life

will go forward with ever-increasing momentum, till life shall attain its normal limits and every child shall reach his hundred years. God speed the day.

An interesting paper on the uses and abuses of animal vaccination was read on Wednesday by Dr. Samuel W. Abbott, of Wakefield, Mass., and provoked much discussion. Humanized virus had been the rule from the days of Jenner until the successful propagation of virus from the well known case of cowpox which occurred at Beaugency, France, in 1866. The introduction of this practice into America was mainly due to the efforts of Dr. Martin, of Roxburgh, Mass., who imported animal virus in 1870 and began the successful propagation of vaccine virus from that time in an uninterrupted series of animals. Nine-tenths of all the virus employed in the United States is of animal origin. Much of this is due to the impossibility of obtaining a supply of virus from humanized sources in sufficient quantity and with requisite promptness for use in times of epidemics, when Boards of Health give orders for the purchase of virus sufficient to vaccinate from 1,000 to 100,000 persons on the advent of smallpox in a crowded metropolis, to be delivered fresh in a specified time. How else can it be done? He had charged from from 1,000 to 2,500 points from one animal, and others report from 4,000 to 5,000. The great advantage claimed for bovine virus is the certainty of avoiding innoculation of human disease; and as there have been 3,000,000 or 4,000,000 vaccinations in the United States from bovine virus and not a single authentic case of bovine disease, the advantage is apparent. He claimed equal efficiency or potency for the animal as the humanized virus after ten years' experience with each.

Considerable discussion of an interesting character ensued after the reading of the paper, of which the above is a very short report. It would appear that from January to April, 1882, enormous orders were sent to vaccine farmers, reaching to 50,000 points a day to a single farm for days and days together, with the most urgent request for immediate delivery. Under these circumstances errors and inattention and improper methods crept in the obtaining bovine virus. There were several gentlemen who were much opposed to the bovine virus, claiming that erysipelas and other skin diseases of more or less gravity generally accompanied the use of it. However, it was thought that in private practice the humanized virus was the best, and for large and quick demand bovine virus from properly conducted farms was the best. A common expression was that the little operation of vaccination was constantly most carelessly and improperly done.

The most important matter brought before the Association was a report from J. L. Cabell, M. D., President of the National Board of Health, of the operations and work of that body since its initiation. It

was a proper time for this review, as unless the charter was renewed by Congress at its next session it would expire next year. The purposes of the National Board of Health were brought before the Association:

First. Aid to State and local Boards of Health in the execution and enforcement of their rules and regulations to prevent the introduction of contagious and infectious diseases into the United States from foreign countries.

Second. Aid to the same parties in maintaining sanitary inspection on the Mississippi River.

Third. The inspection of immigrants, with reference to protection of the people of the United States from the introduction of smallpox by said immigrants. He cited from a report made to Congress the fact that yellow fever was stamped out in New Orleans in 1879, and confined to Memphis, and commerce with the infected cities was not stopped but regulated. Dr. Cabell cited the various scientific investigations which had been made by the National Board of Health: The Havana Commission for investigation of yellow fever; sanitary survey of the Mississippi River; pathological history of yellow fever; standard nomenclature of disease; adulteration of drugs; research on the effects of innoculating the lower animals with diphtheretic exudation; report on the sanitary condition of Baltimore; investigation to determine the prevalence of adulteration in food supplies; the relation of soils to water; investigation relating to the etiology of the malarial fevers; report of the results of an examination made in 1880 of several sewerage works in Europe; report in favor of the fungoid origin of diphtheria. There have been, he said, hostile agencies combined to overthrow the National Board of Health, and we will refer to a few of them:

"1. The State Board of Health of Louisiana, backed by a portion of the press of New Orleans, in its repeated allegations that the National Board of Health has interfered with and obstructed the local authorities, instead of aiding them, as required by law. The interference consists in the National Board establishing an inspection service within the limits of New Orleans, being induced to take this action in compliance with the request of the health authorities of the Mississippi Valley States, including those of Louisiana itself. Nothing short of this will satisfy other communities having intercourse with that city, which would certainly be quarantined by its neighbors to a most inconvenient extent if it were not for the protection it derives from the certificates of the inspecting agents of the National Board.

"2. The powerful influence of the Treasury Department, which asserts a claim to the disbursement of all funds appropriated by Congress for the suppression of epidemics, and to the selection of its own medical

officer, the Chief of the Marine Hospital Service, as its agent in these operations, although an express provision of an existing Act of Congress repeals all previous Acts conferring sanitary powers on that branch of the public service and clothes the National Board of Health, which includes in its membership a detailed officer of that service, with all the power assumed by the general government in respect to quarantine and sanitary matters.

"3. As composed of medical men selected without regard to party affiliations and wielding no political patronage, the Board finds no hearty support from politicians of either of the great parties of the country.

"In conclusion, we desire to say that, as the present membership of the Board was largely due to the unsolicited choice of the Advisory Committee of the Public Health Association, we abide its decision as to our longer continuance in these positions, preferring, if deemed consistent with the public good, to be relieved by the selection of others, who may, pérhaps, command a larger share of public support.

"L. M. BEMISS,
"R. W. MITCHELL,
"T. L. VERDI,
"J. L. CABELL,
"STEPHEN SMITH,
"H. A. JOHNSON."

On motion of Dr. Early of Kentucky, a vote of thanks was extended Dr. Cabell for the paper just read.

The Secretary of the Association then presented the following resolutions, which had been prepared by the Executive Committee in view of Dr. Cabell's report, referred to the Advisory Council, and again referred back to the Executive Committee for revision:

THE ASSOCIATION RESOLUTIONS.

"*Resolved*, That this Association has listened with great interest and satisfaction to the analysis and detail of the work accomplished by the National Board of Health, as furnished by the President of the Board; and that we commend its careful perusal to all upon whom, as legislators or sanitarians, devolves the care of the public health, not only as showing the scope of its faithful and efficient administration, but as suggesting and illustrating the permanent demand there is for a sustained national organization of this general character.

"*Resolved*, That there is a work to be done by such a Board which cannot be done by any local or State Board, and which is not and cannot be adequately represented or fulfilled by any other branch of the national service, as illustrated in its inspections and inquiries into spe-

cial conditions so serious as to be national rather than local; in its dealings with yellow fever and smallpox; in its plans for consular health bills from foreign ports and refuge stations for a wide coast range; in its internal care over river and railroad transportation; in its investigations into malaria and other widespread causes of disease; in its valuable scientific and practical inquiries into the causes and courses of epidemics; in its comparisons of statistical facts, and in its widespread distribution of information most intimately affecting the vital conditions of our whole population.

"*Resolved*, That, while each State and each division of national service may contribute much aid in their respective spheres, we view with regret any curtailment of the functions of a Board so constituted as to represent and unify the health interests of the entire nation.

"*Resolved*, That we counsel the National Board to continue all the work possible under its present restricted appropriations and await with confidence the extension of its powers of usefulness and that appreciation of its work for the past and its necessity for the future which can but result from a calm and careful estimate of the safeguards requisite for national health and prosperity.

"*Resolved*, That the confining the work of the Board to cholera, yellow fever and smallpox is believed to be in the highest degree injudicious. It should have the full powers for investigation of all preventible diseases conferred upon it by its constituting Act, and be granted the funds necessary for this purpose, and this should be done irrespective of the action which may be taken with regard to quarantine.

"*Resolved*, That the members of the American Public Health Association hereby pledge their individual co-operation in endeavoring to secure such national legislation as shall insure to the National Board of Health such material aid as may be needful in carrying out with the greatest efficiency all measures pertaining to the interest of public health.

"*Resolved*, That the Advisory Council of this Association, representing, as it does, the sanitarians of the various States, be directed to use all laudable efforts to place before the President of the United States and the Congress at Washington, and before members of Congress in their several States, the very great importance to the welfare of this country of such action by the United States Government as shall increase to the fullest extent the means and powers of usefulness of the National Board of Health.

"*Resolved*, That so long as the United States Government confines its maritime and inland quarantine service to the aiding of State and local Boards of Health, it is essential, for the best results, that such aid shall be through channels most generally acceptable to State and local Boards

of Health, whose co-operation is requisite; and we sincerely believe that the National Board of Health is the channel most generally acceptable.

"*Resolved*, That the President, Vice-Presidents and Secretary of this Association be charged with the duty of securing the complete presentation to the authorities at Washington of the full influence of this Association in favor of properly and permanently sustaining the National Board of Health.

"*Resolved*, That the address of the President of the National Board of Health, together with these resolutions, and such other papers or resolutions as relate to this subject, be printed at once in pamphlet form, to the number of one thousand."

An animated discussion ensued, in which a unanimous support towards the National Board of Health was drawn out, with the single exception of Dr. Baillache, U. S. M. H. S., who thought the U. S. M. H. Service could and should take care of the Quarantine Department.

On Thursday Dr. Gihon read an elaborate report on venereal diseases, stating that there were 2,000,000 cases of venereal diseases in the United States, and recommending legislation making it a misdemeanor to communicate venereal diseases, and making it obligatory on any one knowing that such a disease existed to report it. He drew a lurid picture, as Dr. Billings remarked, and, in consideration of the impracticability of such a law forcing medical men to betray the confidence of their patients, the whole matter was laid on the table, although it was generally conceded to be a matter of vital moment, but one at this time too difficult to manage. A resolution was adopted looking to the better and more complete registration of vital statistics.

Dr. O. W. Wight, Health Officer of Detroit, read a paper on "The law requiring medical men to report cases of infectious disease and deaths to the authorities," in which he said:

"The obligations of physicians to furnish the public health authorities with death certificates and reports of contagious diseases in their practice not only pertain to the higher plane of legal duties, which is above and beyond mere property considerations, as viewed in the amendments of the Federal Constitution, and in provisions of the Constitutions of various States, but may be construed as in the nature of a license. Every lawyer, when admitted to the bar, must pay a fee, in order to be enrolled in the list of attorneys. The State, in the exercise of its police power, may impose any reasonable condition on the practice of medicine. It may require an annual license fee, or it may allow any man to practice physic or surgery only upon the condition that the practitioner shall furnish the public with certificates of death and information of the existence of infectious diseases within the sphere of his professional work.

It is hardly necessary to say that the State may invest its municipali-

ties with so much of its sovereign power as necessary to impose the same conditions. If medical men in any particular locality wish to test the validity of statutes or ordinances requiring them to make death certificates and report cases of infectious diseases, my sincere and earnest advice to them is that they proceed by a courteous demand for compensation and not by a defiant refusal to obey law. They will thus secure the sympathy, if not the co-operation, of the health authorities. The public, for whose benefit and protection the State uses its almost unlimited police power, will in that case be much more inclined to treat the claim with consideration and respect."

A paper on the negro mortality in Memphis was read by Dr. Thornton, covering the causes of death among the colored race, their liability to pulmonary affections, and the very great mortality among the young. However, while the mortality of the negro is greater, the increase is greater also. Dr. Ferry of New Orleans stated that he had found the mortality from malarial diseases almost as great among the colored as among the white. Several papers of interest were read and much information elicited. I regard the action of the American Public Health Association endorsing the National Board of Health and its labors and recommending its continuance as of the greatest importance. In the large and comprehensive work undertaken by the National Board of Health the interests of the cities of the South Atlantic coast line have not been forgotten or neglected. The establishment and equipment of Sapelo Refuge Station, on the coast of Georgia, has been a wise movement to keep the dreaded yellow fever from amongst us, and the quarantine laws and regulations of South Carolina and Georgia are based directly upon the continuance of Sapelo. Under these circumstances I would respectfully suggest that suitable resolutions be framed commendatory of the National Board of Health, which shall be forwarded to our Senators and Representatives in Congress.

ACTION OF THE CHARLESTON BOARD OF HEALTH.

The thanks of the Board of Health were tendered Dr. Horlbeck for his report, and the following resolutions adopted:

Whereas the Board of Health of Charleston recognize the useful and beneficent labors of the National Board of Health in the cause of hygiene and practical sanitation;

And whereas the Board of Health of Charleston believe that the National Board of Health have been actuated solely and e tirely in their efforts in the cause of the prevention of disease by motives looking to the public good;

And whereas the Board of Health of Charleston recognize among the many steps taken to prevent the introduction of disease into the

United States the establishment of Sapelo Refuge Quarantine Station, (on Blackbeard Island on the coast of Georgia, a point to which vessels from infected latitudes with yellow fever on board bound for cities on the Atlantic seaboard of the United States shall repair, especially guarding the ports of Georgia and South Carolina,) as a matter of great moment and vital necessity;

And whereas the Board of Health have been constantly recipients of information as to quarantine law and procedure from the National Board of Health; therefore, be it

Resolved, That the Board of Health of Charleston endorse the resolutions of the American Public Health Association, adopted October 8th ultimo, at Indianapolis, commendatory of the work and labors of the National Board of Health.

Resolved, That these resolutions, with a copy of the resolutions adopted at Indianapolis, be forwarded to the Senators and Representatives of Congress from South Carolina, with a request that they use every effort in their power to have the National Board of Health rechartered, and to have sufficient funds appropriated as will enable that body to continue their work for the prevention of disease, investigation of disease, publication of all useful facts relating thereto, and thorough and complete equipment of Sapelo Station.

Resolved, That a copy of these resolutions be forwarded to the health authorities of Savannah, with a request that they co-operate in the effort herewith made.

Resolved, That a copy of the above resolutions be forwarded to the National Board of Health and American Public Health Association.

All of which is respectfully submitted.

H. B. HORLBECK, M. D.,
City Registrar.

MORTUARY STATISTICS.

REPORT OF THE NUMBER OF DEATHS IN THE CITY OF CHARLESTON IN EACH MONTH, FOR THE YEAR 1882.

WHITES.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Abscess	...	1	...	...	...	...	...	...	...	1	...	...	2
Accident	3	...	...	2	...	...	...	...	...	...	...	...	5
Albuminuria	...	1	...	...	...	...	...	...	...	...	...	...	1
Alcoholism	...	...	...	...	...	...	1	...	..	2	...	2	5
Anæmia	...	...	...	...	...	...	...	...	...	...	1	...	1
Anasarca	...	...	...	...	...	...	...	...	...	1	...	...	1
Apoplexy	1	...	4	3	1	...	...	...	...	3	5	4	21
Asthenia	...	...	...	...	...	...	...	1	...	...	...	...	1
Asthma	...	...	1	...	...	...	...	...	...	...	...	...	1
Atelectasis, Pulm	...	...	...	...	...	...	...	1	...	...	...	...	1
Atrophy	...	...	...	...	...	...	1	...	...	...	...	...	1
Bowels, Inflammation	...	...	...	...	...	...	...	...	1	...	...	...	1
Brain, Anæmia	...	...	...	...	...	...	1	...	...	...	...	1	2
Brain, Concussion	...	...	...	...	...	...	...	...	...	...	...	1	1
Brain, Congestion	1	1	1	3	...	3	...	2	1	2	2	2	18
Brain, Effusion	1	...	...	...	...	...	2	...	1	2	1	1	8
Brain, Hyperemia	...	...	...	...	...	...	1	...	...	...	...	...	1
Brain, Inflammation	...	...	...	...	1	...	...	...	...	...	...	...	1
Brain, Softening	1	...	1	...	...	...	...	1	...	...	...	...	3
Brain, Tumor of	...	...	...	...	1	...	...	...	...	...	...	...	1
Bronchitis	1	...	...	...	...	...	...	...	...	2	5	2	10
Bronchitis, Capillary	...	1	...	...	...	...	...	...	...	...	...	...	1
Bronchitis, Senile	...	...	1	...	...	...	...	...	...	...	...	...	1
Burn	...	...	...	...	...	1	...	...	...	...	...	...	1
Cachexia, Malarial	...	...	...	...	...	...	...	...	...	...	...	1	1
Cancer	...	...	1	...	...	1	1	...	...	1	2	...	6
Cancer, Breast	...	...	...	...	...	...	...	...	1	...	...	...	1
Cancer, Uterus	...	...	...	...	...	...	2	...	1	...	...	...	3
Carcinoma	...	...	1	...	...	...	1	...	...	...	...	...	2
Catarrh	...	...	...	...	...	...	...	...	1	...	...	...	1
Chlorosis	...	...	...	...	...	...	...	...	...	...	1	...	1
Chloroform Narcosis	...	...	...	...	...	1	...	...	...	...	...	...	1
Cholera	...	...	1	...	...	...	...	...	...	...	...	...	1
Cholera Infantum	...	...	...	...	2	...	3	4	...	1	1	...	11
Colitis	...	...	...	...	1	...	...	...	...	...	...	...	1
Consumption	8	5	7	7	4	4	3	7	7	8	5	7	72
Convulsions	7	1	2	3	2	2	2	1	...	4	...	1	25
Convulsions, Puerperal	...	...	...	...	...	...	...	...	...	...	...	1	1
Croup	1	...	1	...	...	...	...	...	...	...	1	...	3

DEATHS IN THE CITY OF CHARLESTON FOR 1882.—*Continued.*

WHITES.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Croup, Membraneous	...	...	...	...	...	...	...	...	...	...	...	1	1
Cyanosis	...	2	...	...	...	...	...	...	...	...	...	...	2
Debility	1	2	3	2	...	1	1	...	1	1	...	...	12
Dentition	...	2	...	1	2	1	1	3	2	3	1	2	18
Diarrhœa	...	...	1	1	...	1	3	1	1	1	...	...	9
Diarrhœa, Chronic	...	...	1	...	...	...	...	...	1	...	...	...	2
Diphtheria	1	...	1	2	...	...	...	2	...	...	10	1	17
Dropsy	...	1	...	...	1	...	...	...	1	...	1	3	7
Dropsy, Cardiac	...	...	...	...	1	...	...	...	2	...	...	...	3
Drowning	...	...	...	...	...	2	...	...	...	...	...	...	2
Dysentery	...	...	...	1	...	...	3	...	...	...	...	1	5
Emphysema	...	...	...	1	...	...	...	...	...	...	...	...	1
Endocarditis	...	...	...	...	...	...	...	...	1	...	...	...	1
Enteritis	...	...	...	1	...	...	...	...	...	...	...	...	1
Entero Colitis	1	...	...	...	...	...	...	...	...	...	1	...	2
Fever, Bilious	...	...	...	...	...	...	...	...	...	1	...	...	1
Fever, Congestive	...	...	...	...	...	...	2	...	...	2	...	...	4
Fever, Dengue	...	..	...	...	...	...	...	...	...	...	1	...	1
Fever, Malarial	...	1	...	...	...	...	...	1	...	2	2	1	7
Fever, Remittent	1	...	...	...	...	2	...	1	...	...	...	...	4
Fever, Remittent Infantile	...	...	...	...	...	...	...	1	...	...	...	...	1
Fever, Scarlet	1	...	1	1	3	1	...	...	...	...	3	...	10
Fever, Typhoid	1	2	...	3	2	...	...	...	1	2	...	4	15
Fracture Femur	...	...	...	...	...	...	...	1	...	...	...	...	1
Gastritis	1	...	1	1	1	...	1	...	...	...	...	...	5
Gastro Enteritis	1	...	...	...	...	...	2	...	1	...	...	...	4
Hemorrhage	...	...	1	...	...	...	...	...	...	...	...	...	1
Heart Disease	2	...	...	...	2	1	...	2	1	1	2	1	12
Hemiplegia	...	...	...	...	...	...	...	...	...	...	...	1	1
Hernia, Inguinal	...	...	...	...	...	...	1	1	...	...	...	...	2
Hydrothorax	...	1	...	...	...	1	...	1	...	...	...	...	3
Intussusception	...	...	...	...	...	1	...	1	...	...	...	...	2
Insanity	1	...	...	...	...	...	...	...	...	...	...	...	1
Kidney, Bright's Disease	1	1	..	2	...	1	...	1	...	...	...	...	6
Kidney, Disease of	...	...	...	...	...	...	...	...	1	...	...	...	1
Laryngitis	...	...	...	...	1	...	...	...	...	...	...	...	1
Liver, Cirrhosis	...	...	1	..	...	...	1	...	1	1	...	1	5
Liver, Congestion	1	1	...	1	...	2	...	...	...	...	2	...	7
Liver, Inflammation	...	...	...	...	...	...	...	1	1	...	...	1	3
Lungs, Congestion	3	2	2	1	...	...	...	1	1	1	1	1	13
Lungs, Inflammation	...	...	...	...	...	...	1	...	...	...	...	...	1
Lungs, Œdema	...	1	1	...	...	...	...	...	...	...	...	...	2
Marasmus	...	...	...	...	1	1	2	1	...	1	...	1	7

DEATHS IN THE CITY OF CHARLESTON FOR 1882.—*Continued.*

WHITES.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Meningitis	2	...	...	...	...	...	...	...	1	...	1	...	4
Meningitis, Cerebro Sp	...	...	...	...	...	...	...	1	...	...	...	...	1
Menespauses	1	...	...	...	...	...	...	...	...	...	...	...	1
Nervous Exhaustion	...	1	...	...	...	...	...	...	...	...	...	...	1
Old Age	3	3	2	1	1	2	2	4	1	1	2	2	24
Ovariotomy	...	...	...	1	...	1	...	...	...	...	...	...	2
Paralysis	1	5	1	...	1	...	...	3	...	3	...	...	14
Paraplegia	...	...	1	...	...	...	...	...	...	...	...	...	1
Parturition	1	...	...	1	...	...	...	2	1	...	...	1	6
Pericarditis	...	1	...	1	...	...	...	...	...	...	...	...	2
Peritonitis	1	1	1	...	...	...	...	1	...	...	...	...	4
Pneumonia	2	...	2	...	1	1	...	...	1	...	3	...	10
Pneumonia, Broncho	...	...	1	...	...	...	...	...	...	...	...	...	1
Pneumonia, Pleuro	...	...	1	1	...	...	...	...	...	...	...	...	2
Pneumonia, Typhoid	...	...	...	...	1	...	...	...	1	...	...	...	2
Poisoning, Opium	...	...	...	...	1	...	1	...	...	...	...	...	2
Poisoning, Strychnia	...	...	1	...	...	...	...	...	...	...	...	...	1
Pyæmia	...	1	...	...	...	...	...	...	...	...	...	...	1
Rheumatism	...	...	...	...	...	...	...	...	...	1	...	...	1
Sclerosis, Cerebro Sp	...	...	1	1	...	...	...	...	...	...	1	1	4
Scrofula	...	...	...	1	...	...	...	...	...	...	...	...	1
Septicæmia	...	...	...	...	...	...	...	...	1	...	...	...	1
Spina Bifida	...	...	...	...	...	...	...	1	...	...	...	...	1
Spinal Disease	...	...	...	...	...	...	1	...	...	...	...	...	1
Stomach, Ulcer	...	...	...	...	...	1	...	...	...	...	...	...	1
Suicide	...	1	...	...	...	...	...	...	...	...	...	...	1
Syncope	...	...	1	...	...	...	...	...	...	...	...	...	1
Syphilis	...	...	...	...	...	1	...	...	...	...	...	...	1
Tetanus	1	...	...	...	...	...	...	...	...	...	...	...	1
Thrush	...	...	...	...	...	...	...	...	...	...	...	1	1
Trismus Nascentium	...	...	...	1	...	1	1	2	...	1	1	2	9
Tuberculosis	...	...	...	...	1	...	...	...	...	...	...	1	2
Undefined	...	...	...	...	1	...	...	...	...	...	...	...	1
Uræmia	...	...	...	...	...	...	1	...	...	...	...	...	1
Urethretis	...	...	...	...	...	1	...	...	...	...	...	...	1
Whooping Cough	...	...	...	6	7	4	2	...	1	1	...	...	21
Wound, Gunshot	...	...	...	...	...	...	...	...	...	...	1	...	1
Wound, Punctured	...	1	...	...	...	...	...	...	...	...	...	...	1
Totals	52	40	46	50	40	39	44	50	36	50	67	50	554

DEATHS IN THE CITY OF CHARLESTON FOR 1882—*Continued.*

BLACKS AND COLORED.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Abscess	...	...	...	...	...	...	...	1	...	...	...	...	1
Accident	3	...	...	3	...	...	...	...	...	...	...	...	6
Alcoholism	...	1	...	1	...	...	1	...	...	...	...	...	3
Anæmia	...	...	...	1	...	...	...	...	...	...	...	...	1
Anasarca	...	...	...	...	1	...	...	1	1	2	1	...	6
Aneurism	...	...	...	...	...	...	1	...	...	....	....	....	1
Angina Pectoris	...	...	...	...	...	...	...	1	...	...	2	...	2
Apoplexy	4	1	4	...	1	1	1	1	2	3	1	1	20
Ascites	...	...	1	...	...	...	...	1	...	...	...	...	2
Asthma	...	...	...	...	...	1	...	...	...	...	..	...	1
Asphyxia	...	...	...	...	...	...	1	1	...	...	...	..	2
Atelectasis, Pulmonum	...	...	...	...	...	...	...	...	...	1	...	...	1
Atrophy	...	...	...	...	...	...	...	...	1	...	...	...	1
Bowels, Inflammation	1	1	...	...	...	...	...	...	1	2	...	...	5
Brain, Congestion	...	1	3	...	2	2	...	1	1	5	2	...	17
Brain, Effusion	...	...	...	...	...	...	...	1	...	1	...	...	2
Brain, Inflammation	...	...	...	...	...	...	2	...	...	...	1	...	3
Brain, Softening	1	...	...	2	...	...	...	...	...	...	...	...	3
Bronchitis	1	...	...	...	1	1	1	...	2	...	3	2	11
Bronchitis, Capillary	1	3	...	...	...	...	...	...	...	...	...	...	4
Bronchitis, Catarrhal	...	...	...	...	...	...	...	1	...	....	....	....	1
Burn	...	...	...	...	...	...	1	...	...	...	...	...	1
Cachexia, Malarial	...	...	...	...	...	1	...	...	...	...	...	...	1
Cancer	...	...	...	...	...	...	...	2	...	2	2	...	6
Cancer, Stomach	...	...	...	1	...	...	...	...	...	...	...	...	1
Cancer, Uterus	...	...	...	1	...	...	...	...	...	1	...	...	2
Carcinoma	...	...	...	...	...	...	...	...	1	...	...	...	1
Celluttitis	1	...	...	...	...	...	...	...	...	...	...	...	1
Cholera	...	...	1	...	...	...	...	...	...	...	...	...	1
Cholera Infantum	1	...	...	1	5	6	6	6	1	1	...	2	29
Colitis	...	...	...	...	...	2	...	...	...	...	...	...	2
Consumption	19	18	14	11	21	15	18	19	16	16	17	22	206
Convulsions	5	2	6	4	4	4	5	8	1	3	2	5	49
Convulsions, Puerperal	1	...	...	...	...	...	...	...	2	...	...	...	3
Croup	1	...	...	...	...	...	...	...	...	...	...	...	1
Croup, Membraneous	...	...	...	...	...	...	...	1	...	...	...	...	1
Cyanosis	...	...	...	1	...	...	...	...	...	...	...	...	1
Cystitis, Chronic	...	...	...	...	...	...	1	...	...	...	...	...	1
Debility	1	6	1	2	1	...	2	3	2	3	...	...	21
Dentition	1	1	1	2	5	7	2	2	1	4	5	1	32
Diarrhœa	...	1	...	1	2	5	1	5	2	3	...	...	20
Diarrhœa, Chronic	...	...	1	...	...	...	1	...	3	...	...	1	6
Diphtheria	2	...	1	...	1	...	...	1	1	1	...	...	7

DEATHS IN THE CITY OF CHARLESTON FOR 1882.—*Continued.*

BLACKS AND COLORED.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Dropsy	2	5	1	2	1	3	1	...	2	2	...	3	22
Dropsy, Cardiac	1	...	...	2	1	...	...	2	...	2	...	...	8
Dropsy, Renal	1	...	...	...	...	...	...	...	...	...	...	...	1
Drowning	1	...	...	1	...	2	...	...	...	...	1	...	5
Dysentery	...	...	...	...	...	...	...	...	...	...	1	...	1
Elephantiasis	...	...	...	...	...	...	...	...	...	...	...	1	1
Enteritis	...	...	1	2	1	1	...	...	1	...	...	...	6
Entero Colitis	...	...	...	...	1	4	2	2	...	...	...	...	9
Epilepsy	...	...	...	1	...	...	...	...	1	1	1	1	5
Erysipelas	...	...	1	...	...	...	...	...	...	...	...	...	1
Fever, Bilious	...	...	...	...	...	...	...	...	...	3	...	...	3
Fever, Congestive	...	...	...	...	...	...	...	...	1	...	...	...	1
Fever, Gastric	...	...	...	...	...	...	...	1	...	...	...	...	1
Fever, Malarial	...	...	...	...	...	4	1	4	1	2	3	...	15
Fever, Puerperal	...	1	...	...	1	...	2	...	...	...	...	...	4
Fever, Remittent	...	...	...	...	...	...	1	...	...	1	...	...	2
Fever, Scarlet	...	...	1	...	...	1	1	...	...	...	...	...	3
Fever, Typhoid	1	3	3	1	3	5	5	6	1	1	4	5	38
Fever, Typho-Malarial	...	...	...	...	...	...	1	...	...	...	...	...	1
Fracture, Comp. Com	...	...	...	...	...	...	...	...	...	...	1	...	1
Fracture, Skull	...	1	...	...	...	...	...	...	...	...	...	...	1
Gastritis	1	...	...	3	...	1	...	1	2	...	...	...	8
Gastro Enteritis	1	3	1	...	...	3	...	1	...	...	...	1	10
Hemorrhage, Umbilical	...	...	1	...	...	...	...	...	...	1	...	...	2
Heart Disease	3	2	1	3	5	1	...	1	...	3	6	4	29
Hemiplegia	...	...	1	...	...	...	...	...	...	...	1	...	2
Hernia, Inguinal	...	1	...	...	...	1	...	...	...	...	...	...	2
Hydrocephalus	...	...	1	...	...	...	1	...	...	...	...	1	3
Hydrothorax	...	...	...	1	...	...	...	1	...	...	...	...	2
Inanition	...	1	...	...	...	...	...	...	...	2	2	2	7
Influenza	...	...	2	...	...	...	...	...	...	...	...	...	2
Insanity	...	...	...	...	...	...	...	...	...	...	1	...	1
Intussusceptio	...	...	...	...	...	1	1	...	...	...	...	...	2
Jaundice	1	...	1	...	...	...	...	...	...	1	...	...	3
Kidney, Bright's Disease	1	5	2	4	...	...	...	2	...	1	...	2	17
Laryngitis	...	...	...	...	...	...	...	1	...	...	...	...	1
Liver, Cirrhosis	...	...	...	...	...	1	...	...	...	...	...	...	1
Liver, Congestion	...	...	...	1	...	1	...	...	...	...	...	...	2
Liver, Inflammation	...	...	...	...	...	...	2	...	...	2	1	...	5
Lungs, Congestion	5	2	3	5	1	3	1	...	...	1	1	2	24
Lungs, Emphysema	...	...	1	...	...	...	...	...	...	...	...	...	1
Lungs, Inflammation	...	...	...	...	...	...	1	...	...	...	...	...	1
Malnutrition	...	...	...	...	...	...	...	...	...	1	...	...	1

DEATHS IN THE CITY OF CHARLESTON FOR 1882.—*Concluded.*

BLACKS AND COLORED.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Marasmus	2	5	7	7	3	4	8	3	10	6	2	2	59
Meningitis	1	1	2	1	...	.....	1	1	...	.....	1	...	8
Old Age	3	4	4	2	6	2	2	4	1	11	4	7	50
Paralysis	1	3	3	1	2	2	2	2	2	2	5	4	29
Parturition	...	...	...	1	...	.....	.....	.....	1	.....	...	...	2
Pericarditis	...	...	...	1	...	.....	.....	.....	...	.....	...	...	1
Peritonitis	...	1	1	1	2	.....	.....	1	1	1	...	1	9
Placenta, Prævia	...	...	...	...	...	1	.....	.....	...	.....	...	...	1
Pneumonia	6	5	6	5	2	1	2	.....	7	5	4	9	52
Pneumonia, Pleuro	...	1	...	1	...	.....	.....	.....	...	.....	...	...	2
Pneumonia, Typho	1	...	...	...	1	1	.....	.....	...	.....	...	...	3
Poisoning, Kerosene	...	...	...	...	...	.....	.....	.....	...	1	...	...	1
Pyæmia	1	1	1	...	...	.....	.....	.....	...	1	...	...	4
Rheumatism	...	..	...	1	...	1	.....	.....	...	.....	...	...	2
Scrofula	1	1	1	1	1	1	.....	.....	2	1	1	...	10
Septicæmia	1	...	...	...	...	.....	1	.....	...	1	1	...	4
Spinal Disease	...	...	...	...	...	.....	1	.....	...	.....	...	...	1
Stricture, Urethra	...	...	...	...	...	.....	.....	1	...	.....	...	...	1
Syphilis	...	...	...	1	...	.....	.....	1	...	1	1	1	5
Tabes, Mesenterica	...	...	...	...	..	.....	.....	1	1	.....	...	...	2
Tetanus	...	...	...	1	1	1	.....	.....	1	1	...	...	5
Thrush	...	...	...	...	...	.....	.....	.....	...	.....	...	1	1
Trismus Nascentium	7	6	4	3	6	6	9	9	9	10	14	5	88
Tuberculosis	...	...	...	4	...	2	2	4	...	.....	1	...	13
Tumor, Uterine	1	...	...	2	...	1	.....	.....	...	.....	...	...	4
Tumor, Ovarian	1	...	...	...	...	.....	.....	.....	...	.....	...	...	1
Undefined	...	...	1	...	...	.....	1	1	...	.....	...	...	3
Uræmia	...	...	1	1	...	.....	.....	.....	1	1	...	...	4
Vermes	...	...	...	...	...	.....	.....	.....	1	.....	...	...	1
Version	...	...	...	1	...	.....	.....	.....	...	.....	...	...	1
Whooping Cough	...	...	...	3	15	14	16	4	5	1	...	1	59
Wound, Gunshot	...	...	...	...	...	2	.....	1	...	1	...	1	5
Totals	87	87	85	95	97	116	109	111	90	115	92	88	1172

NUMBER OF DEATHS, WITH AGES, IN EACH MONTH, AND THE YEAR 1882.

WHITES.

AGES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total in the Year.
Under 1 year of age	4	5	1	10	7	5	8	16	4	10	5	5	80
From 1 to 5 years	8	3	6	7	11	5	8	3	4	1	7	4	67
From 5 to 10 years	3	1	2	1	3	4	2	1	...	2	5	2	26
From 10 to 20 years	2	5	...	4	2	7	...	3	3	3	5	3	37
From 20 to 30 years	6	7	7	6	1	2	4	5	4	7	1	5	55
From 30 to 40 years	5	5	2	8	3	3	5	5	6	6	8	9	65
From 40 to 50 years	3	2	7	4	6	3	4	1	4	6	5	5	50
From 50 to 60 years	5	3	8	4	1	4	5	2	4	9	5	4	54
From 60 to 70 years	5	3	3	2	3	2	1	6	4	3	8	9	49
From 70 to 80 years	10	3	4	2	1	2	6	5	3	3	4	1	44
From 80 to 90 years	1	2	3	1	1	2	1	3	...	...	4	3	21
From 90 to 100 years	...	1	3	1	1	...	...	...	...	...	...	...	6
Over 100 years	...	...	...	...	...	...	...	...	...	...	...	...	.....
Totals	52	40	46	50	40	39	44	50	36	50	57	50	554

BLACKS AND COLORED.

AGES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total in the Year.
Under 1 year of age	22	23	20	26	25	34	36	29	20	30	24	20	309
From 1 to 5 years	8	8	10	11	25	22	19	21	31	14	11	11	191
From 5 to 10 years	3	5	5	5	1	11	4	4	3	9	2	4	56
From 10 to 20 years	7	3	6	6	7	6	3	4	5	5	4	3	59
From 20 to 30 years	11	14	7	7	13	9	12	11	6	13	14	13	130
From 30 to 40 years	10	6	8	13	3	8	12	13	5	11	7	8	104
From 40 to 50 years	5	4	8	10	6	5	10	10	6	5	7	7	83
From 50 to 60 years	9	9	6	5	5	5	4	4	3	8	6	9	73
From 60 to 70 years	6	7	8	8	2	6	3	7	3	6	9	5	70
From 70 to 80 years	5	7	4	...	3	8	4	6	5	10	7	5	64
From 80 to 90 years	...	1	3	1	4	1	2	2	2	2	1	3	22
From 90 to 100 years	1	...	...	3	3	1	.....	.....	1	2	...	...	11
Over 100 years	...	...	...	...	...	.....	.....	.....	...	.....	...	...	.....
Totals	87	87	85	95	97	116	109	111	90	115	92	88	1172

TABLE SHOWING MORTALITY OF WHITES, MALE AND FEMALE, AND BLACKS, MALE AND FEMALE, WITH COMPARATIVE MONTHS DURING YEAR 1882.

MONTHS.	Under 10 Years.		Under 40 Years.		Under 60 Years.		Under 80 Years.		Under 90 Years.		Under 100 Years.		Over 100 Years.		Totals.
	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.	
January	15	33	13	28	8	14	15	11	1	.....	.....	1	.....	.....	139
February	9	36	17	23	5	13	6	14	2	1	1	.....	.....	.....	127
March	9	35	9	21	15	14	7	12	3	3	3	.....	.....	.....	131
April	18	42	18	26	8	15	4	8	1	1	1	3	.....	.....	145
May	21	51	6	23	7	11	4	5	1	4	1	3	.....	.....	137
June	14	67	12	23	7	10	4	14	2	1	.....	1	.....	.....	155
July	18	59	9	27	9	14	7	7	1	2	.....	.....	.....	.....	153
August	20	54	13	28	3	14	11	13	3	2	.....	.....	.....	.....	161
September	8	54	13	16	8	9	7	8	.....	3	.....	.....	.....	.....	126
October	13	53	16	29	15	13	6	16	.....	4	.....	.....	.....	.....	165
November	17	37	14	25	10	13	12	16	4	1	.....	.....	.....	.....	149
December	11	35	17	24	9	16	10	10	3	3	.....	.....	.....	.....	138
Totals	173	556	157	293	104	156	93	134	21	25	6	8	.....	.....	1,726

COMPARATIVE STATEMENT AS TO SEX IN EACH MONTH, 1882.

MONTHS.	Whites.		Blacks and Colored.		Totals.
	Male.	Female.	Male.	Female.	
January	26	26	35	52	139
February	28	12	51	36	127
March	23	23	36	49	131
April	27	23	39	56	145
May	20	20	46	51	137
June	15	24	56	60	155
July	17	27	58	51	153
August	20	30	49	62	161
September	20	16	47	43	126
October	23	27	52	63	165
November	26	31	43	49	149
December	30	20	40	48	138
Totals	275	279	552	620	1,726

REPORT OF MARRIAGES AND BIRTHS 1882.

MARRIAGES.	WHITES.	COLORED.	TOTALS.
January	14	19	33
February	16	12	28
March	10	16	26
April	14	14	28
May	7	7	14
June	13	17	30
July	8	7	15
August	15	16	31
September	5	7	12
October	16	17	33
November	18	11	29
December	12	11	23
Totals	148	154	302
*BIRTHS.			
January	50	88	138
February	45	89	134
March	52	93	145
April	42	73	115
May	49	67	116
June	36	68	104
July	32	67	99
August	50	94	144
September	53	121	174
October	38	106	144
November	46	81	127
December	48	80	128
Totals	541	1,027	1,568
*Excluding Twins	4	6	10
Still Births	41	142	183
Premature	16	42	58

The reports of births and marriages are not always furnished as required by law, consequently the above tables are not entirely correct.

TABLE SHOWING THE TOTAL NUMBER OF CASES TREATED AND OF DEATHS IN THE CITY HOSPITAL AND HEALTH DISTRICTS DURING EACH QUARTER AND THE YEAR 1882.

CASES TREATED.	WHITES. QUARTER ENDING					BLACKS AND COL'D. QUARTER ENDING.					GRAND TOTAL OF ALL CASES.
	March 31st.	June 30th.	September 30th.	December 31st.	Total in the Year.	March 31st.	June 30th.	September 30th.	December 31st.	Total in the Year.	
City Hospital	225	258	341	215	1039	220	227	281	152	880	1,919
Health District No. 1	187	145	153	133	618	394	335	229	215	1173	1,791
Health District No. 2	120	117	115	128	480	164	158	173	184	679	1,159
Health District No. 3	34	47	37	47	165	136	184	197	144	661	826
Health District No. 4	35	30	146	210	421	183	195	287	304	969	1,390
Health District No. 5	14	25	24	23	86	228	264	274	247	1013	1,099
Health District No. 6	73	54	75	93	295	75	83	20	72	350	645
Health District No. 7	73	103	95	108	379	372	530	681	482	2065	2,444
Totals	761	779	986	957	2483	1772	1976	2242	1800	7790	11,273
DEATHS.											
City Hospital	8	8	7	16	29	24	28	14	24	90	119
Health District No. 1	. .	. .	. .	. .	. .	9	7	7	5	28	28
Health District No. 2	. .	1	. .	2	3	8	7	8	6	29	32
Health District No. 3	. .	. .	1	. .	1	6	8	6	3	23	24
Health District No. 4	. .	1	5	5	11	3	27	12	5	47	58
Health District No. 5	. .	1	. .	1	2	10	17	16	14	57	59
Health District No. 6	6	4	5	7	20	7	2	13	4	26	48
Health District No. 7	1	1	1	. .	3	15	24	24	17	80	83
Totals	15	16	19	31	71	82	120	100	78	380	451

NUMBER OF DEATHS IN EACH MONTH, WITH PLACE OF NATIVITY—1882.

WHITES.

NATIVES OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Charleston	29	20	20	31	24	21	29	32	17	25	32	23	303
South Carolina	3	7	9	6	6	6	3	6	5	10	7	12	80
United States	7	2	6	3	2	4	...	6	3	3	3	6	45
Austria	...	...	...	...	...	...	...	...	...	...	1	1	2
Belgium	...	...	...	...	...	...	1	...	...	...	...	...	1
Canada	...	...	...	2	...	1	...	...	...	...	1	...	4
England	1	...	...	...	...	...	...	...	...	...	...	...	1
Europe	...	...	...	...	...	1	...	...	...	...	...	...	1
France	...	...	1	...	1	...	1	...	1	...	...	...	4
Germany	3	3	3	2	...	3	3	3	3	4	1	2	30
Holland	...	...	...	...	...	...	...	...	...	...	...	1	1
Ireland	7	7	5	5	7	2	6	3	5	5	8	2	62
Italy	...	...	...	...	...	...	...	...	1	...	...	1	2
Norway	...	...	...	...	...	...	...	...	...	...	1	...	1
Poland	...	...	...	...	...	...	1	...	...	...	...	...	1
Prussia	...	...	1	...	...	...	...	...	1	1	1	...	4
Scotland	2	...	...	1	...	1	...	...	...	1	1	...	6
Spain	...	...	...	...	...	...	...	...	...	...	...	1	1
Sweden	...	...	...	...	...	...	...	...	...	...	...	1	1
Switzerland	...	1	...	...	...	...	...	...	...	...	..		1
West Indies	...	...	1	...	..	...	...	...	...	...	...	...	1
Unknown	...	...	...	...	...	...	...	...	...	1	1	...	2
Totals	52	40	46	50	40	39	44	50	36	50	57	50	554

BLACKS AND COLORED.

NATIVES OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Charleston	33	49	48	58	63	82	82	75	68	76	59	64	757
South Carolina	52	32	34	34	32	28	26	32	18	29	27	23	367
United States	1	6	2	3	1	6	1	3	4	7	4	1	39
Canada	...	...	...	...	...	.....	.....	.....	...	.....	1	...	1
Jamaica	...	...	...	...	...	.....	.....	1	...	.....	...	...	1
Finland	...	...	1	...	...	.....	.....	.....	...	.....	...	...	1
Unknown	1	...	...	...	1	.....	.....	.....	...	3	1	...	6
Totals	87	87	85	95	97	116	109	111	90	115	92	88	1172

TOTAL MORTALITY 1882—WHITES, BLACKS AND COLORED.

SEX AND STATUS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Males, white.....	26	28	23	27	20	15	17	20	20	23	26	30	275
Females, white...	26	12	23	23	20	24	27	30	16	27	31	20	279
Total white....	52	40	46	50	40	39	44	50	36	50	57	50	554
Males, black and colored.....	35	51	36	39	46	56	58	49	47	52	43	40	552
Females, black and colored....	52	36	49	56	51	60	51	62	43	63	49	48	620
Total black and colored...	87	87	85	95	97	116	109	111	90	115	92	88	1172
Grand total....	139	127	131	145	137	155	153	161	126	165	129	138	1726

Estimated population, 1882, 52,286—whites, 25,000; blacks and colored, 27,286. Proportion of deaths, one in thirty. Proportion of deaths, white, one in forty-five; proportion of deaths, blacks and colored, one in twenty-three.

Ratio per 1,000 white for the year.....22.32
Ratio per 1,000 blacks and colored for the year.....42.91
Ratio per 1,000 white and colored for the year..... 33.01

Comparative Mortality.

	1882.			1881.			1880.			1879.		
	Population.	Number of Deaths.	Proportion of Deaths.	Population.	Number of Deaths.	Proportion of Deaths.	Population.	Number of Deaths.	Proportion of Deaths.	Population.	Number of Deaths.	Proportion of Deaths.
Whites.....	25,000	554	1 in 45	22,713	651	1 in 34	22,713	500	1 in 45	22,713	517	1 in 43
Blacks and colored..	27,286	1,172	1 in 23	27,286	1,292	1 in 21	27,286	1,121	1 in 24	27,286	1,075	1 in 25
Totals..	52,286	1,726	1 in 30	49,999	1,943	1 in 25	49,999	1,621	1 in 30	49,999	1,592	1 in 31

LONGEVITY.

The following list embraces the names of the residents of Charleston dying at the age of eighty years and upwards, during the year 1882:

WHITE.

Date of Death.	*Age—Yrs.*
January 16th—J. E. Brown, female	83
February 6th—Wm. Kelly	82
February 9th—Julia Hinkler	82
February 15th—Wm. Webb	93
March 2d—C. Solomons, female	81
March 4th—Mrs. E. Hill	90
March 7th—Mrs. H. Holbrook	90
March 7th—Mrs. E. Tweed	96
March 23d—C. Ballentine, female	82
April 20th—J. Fraser, male	90
April 22d—S. N. Thayer, female	84
May 19th—J. Stanton, male	82
May 23d—Mrs. H. Kohn	95
June 1st—John E. Cay	80
June 20th—G. J. Holmes, male	84
July 13th—Mrs. Woodleigh	80
August 11th—E. B. Middleton, female	82
August 21st—M. Buist, female	80
October 7th—Henry Magrath	80
October 24th—M. J. Capdeville, female	82
November 14th—Miss A. Stuart	86
November 21st—Mrs. A. F. Hoyt	80
November 28th—Mrs. E. C. L. Milne	88
OMITTED FROM PREVIOUS LIST—	
March, 1843—John Julius Pringle	91

COLORED.

January 24th—Nannie Singleton	90
February 13th—May Hill	80
March 7th—H. Jones, female	81
March 21st—A. Higgins, male	80
March 27th—R. Pringle, female	81
April 2d—Thomas Cunningham	90
April 2d—Ann Templeton	90
April 6th—N. McBride, female	80
April 14th—Wm. Harleston	98

Date of Death.	*Age—Yrs.*
May 9th—Wm. Lucus	90
May 10th—Venus Ravenel	90
April 26th—A. Washington, male	80
April 29th—Betsy Russell	81
June 14th—June Florry, female	90
June 27th—Peggy Kinloch	85
July 18th—Peggy Simons	83
August 13th—E. Gank, female	80
August 21st—R. Donnelly, female	82
August 27th—M. Minot, female	80
September 25th—Sarah Knight	88
September 26th—A. Colleton, male	87
October 2d—Sharper Washington, male	86
October 8th—J. Lopez, female	85
October 28th—Mary Jackson	90
October 30th—March Ancrum, male	94
November 14th—Rody Morrison, male	85
December 2d—Nancy Savage	88
December 11th—Anthony Bee	80

The following ordinance governing the City Dispensary physicians of Charleston was ratified January 19th, 1883:

SECTION 214. Clause I. At the first regular meeting of the City Council held in February, 1883, and at the first regular meeting of the said City Council held in February of every second year thereafter, the City Council shall elect three physicians, who, together with the physician supplied by the Trustees of the Shirras Dispensary, and who shall be designated as the City Dispensary Physicians, shall have charge of the indigent sick of the city.

Clause II. That neither of the aforesaid physicians shall, during the period he holds the office, engage or be employed in any private medical practice for gain.

Clause III. That no physician elected or supplied under this ordinance shall be allowed under any circumstances to hold the office of a City Dispensary Physician for more than four years.

Clause IV. That the city of Charleston shall be divided into four Health Districts, of which that portion lying South of Calhoun street and East of King street shall constitute Health District No. 1; that portion lying South of Colhoun street and West of King street shall constitute Health District No. 2; that portion lying North of Calhoun street and East of St. Philip street, from Calhoun street to Shepherd street, and East of King street from Shepherd street to the city boundary

shall constitute Health District No. 3; and that portion lying North of Calhoun street and West of St. Philip street, from Calhoun street to Shepherd street, and West of King street from Shepherd street to the city boundary, shall constitute Health District No. 4.

Clause V. That the Board of Health shall assign to the physician supplied by the Trustees of the Shirras Dispensary the care of Health District No. 1; to one of the physicians elected by the City Council the care of Health District No. 2; to one of the physicians elected by the City Council the care of Health District No. 3; and to one of the physicians elected by the City Council the care of Health District No. 4.

Clause VI. In case of the failure of any of the aforesaid physicians to remove into the Health District to which he may be assigned within one month after such assignment, or in case of the removal of any one of the aforesaid physicians out of the Health District to which he may be assigned, and so remaining removed for fourteen days without a special written permission from the Board of Health, in which permission the duration of such removal shall be specified, the physician so failing to remove within, or who shall remove out of, the District to which he was assigned shall forfeit his office; such office shall immediately become vacant, such vacancy shall forthwith be reported by the City Registrar, and the City Council or the Trustees of Shirras Dispensary, as the case may be, shall, as promptly as practicable, elect another physician to fill the vacancy so created.

Clause VII. It shall be the duty of the aforesaid physicians to answer every call made upon them by any and all persons resident within their respective Health Districts, and give such medical attention as the case may require: *Provided, however*, That if any one of the aforesaid physicians upon answering the call so made upon him shall doubt whether the person calling upon him comes within the description of "indigent sick of the city," he shall at once report such case to the City Registrar, who shall examine into the circumstances of the caller, and if, in the opinion of the City Registrar, such caller does not come within such description, he shall so inform such physician in writing, who shall thereupon be relieved from further attendance upon the case.

Clause VIII. In cases of such serious or protracted illness, as the indigency of the person calling upon any one of the aforesaid physicians prevents such person from procuring sufficient nursing, nourishment, &c., the physician so called upon may give a permit for the admission of such person into an appropriate city hospital; such permit shall be in writing, conforming to the certificate required at each hospital, and shall state fully the disease and the circumstances under which such permit was given, and upon such permit the person shall be admitted into the designated hospital: *Provided, however*, That such permit shall be subject

to the revision of the Board in charge of the designated hospital, and if, in the opinion of such Board, such permit does not present a case proper for treatment in such hospital, the person admitted on such permit may be discharged from such hospital.

Clause IX. The Board of Health shall provide all medicines for the use of the indigent sick of the city, supplying very many articles in convenient form for immediate use, and also contracting for such prescriptions as may be ordered with four trusty druggists, whose places of business shall be conveniently located in the several health districts. The Board of Health shall also prepare such blanks for the necessary reports and establish such form of orders for prescriptions as shall, duly signed, be vouchers for the money cost thereof.

SEC. 215. The City Dispensary Physicians shall be under the direction, supervision and control of the Board of Health, and shall be subject to such rules and regulations as may be prescribed by said Board. All complaints of inattention and neglect of duty on the part of the City Dispensary Physicians shall be reported to the Board of Health, who will take cognizance, investigate and make report to the City Council of same. The City Dispensary Physicians shall make weekly reports of all cases of indigent sick which come under their care, to the Board of Health, on such blanks as that body will provide. All nuisances coming under the observation of the City Dispensary Physicians liable to affect the general health in their respective health districts will be at once reported at the office of the Board of Health.

SEC. 217. The physicians aforesaid shall be required to live in and have offices in the districts to which they are assigned; to have their office hours from 8½ to 9½ A. M., 2 to 3 P. M., and 7 to 8 P. M., daily, Sundays and holidays included; and upon each office there shall be a sign, stating the name of the physician, his residence, the number of the district, and the office hours—the form and lettering on all such signs to be uniform and approved by the City Registrar; to carry with them on their professional visits a pocket-book of medicines for prompt use among their patients, and to answer calls at all hours. In the event of the sickness or absence from the city of any of the aforesaid physicians, he shall procure a substitute, whose residence and office hours shall be published in a daily paper. No temporary substitute shall be made without the written approval of the Mayor. The Shirras Dispensary Physician will be under the above regulations.

SEC. 218. Each of the said physicians, including the Shirras Dispensary, shall report in tabular form once each quarter of the year, and also annually, to the Registrar of all important matters connected with their duties.

SEC. 219. The salary of each of the City Dispensary Physicians shall be at the rate of one thousand dollars per annum, payable monthly; and also for the support of his horse, which he is hereby required to keep and use in his practice under this ordinance, the sum of one hundred and fifty dollars per annum, payable monthly; any deficiency in the salary of the physician furnished by the Trustees of the Shirras Dispensary, in consequence of the inability of the funds under their charge to make up the full salary of one thousand dollars per annum, the same shall be borne and paid by and out of the city treasury. To provide the necessary medicines, stimulants, &c., prescribed by the aforesaid physicians, there shall be annually appropriated by the City Council the sum of two thousand dollars.

METEOROLOGICAL SUMMARY.

DATE.	BAROMETER.										THERMOMETER.							WIND.					
	MEAN OF TELEGRAPHIC OBSERVATIONS.							RANGE.			MEAN OF				RANGE.								
1882.	Three Telegraphic Observations.	Corrected for Temperature, Instrumental Error and Elevation.			Corrected for Temperature and Instrumental Error only.			Highest.	Lowest.	Difference.	Three Telegraphic Observations.	TELEGRAPHIC OBSERVATIONS.			Maximum.	Minimum.	Difference.	Mean Relative Humidity, 3 Tel. Observations. (Fr. Ct.)	Prevailing Direction.	Total No. Miles.	Max'm Velocity During Month	Amount Rain or Melted Snow. (Inches and Hundredths.)	No. of Days on which Rain or Snow Fell.	No. of Auroras.
		A. M.	P. M.	Midnight.	A. M.	P. M.	Midnight.					A.M.	P.M.	Midnight										
January.....	30.218	30.235	30.188	30.233	30.175	30.128	30.173	30.589	29.640	.866	55.1	51.9	59.5	53.8	76	26	50	78 7	S.W	5,638	24	1.69	12	
February.....	30.219	30.236	30.188	30.232	30.176	30.128	30.172	30.614	29 452	1 162	57.3	52.3	63.1	56.6	78	32	46	74.3	S.W	5,468	32	1.09	8	
March.....	30.155	30.169	30.125	30.172	30.109	30.065	30.112	30.535	29.740	.795	62	57	68.1	60.7	85	40	45	70.9	S.W	6,809	32	5.96	9	
April.....	30.057	30.082	30.034	30.055	30.022	29.974	29.995	30.427	29.587	.840	66.6	62.8	71.7	65.2	86	46	40	77.9	S.W	6,064	24	2.72	8	
May.....	30.038	30.056	30.021	30.038	30.006	29.971	29.988	30.312	29.718	.594	71.6	68	76 9	79	87	51.5	35.5	74.2	S.W	6,454	24	1.82	7	
June.....	30.011	30.026	29.991	30.015	29.976	29.941	29.965	30.217	29.811	.406	79.3	76 8	84.3	76 8	97	63	34	75	S.W	6,160	27	9.12	16	
July.....	30.079	30.090	30.061	30.085	30.040	30.011	30.035	30.246	29.772	.474	81.4	78.6	86 3	79.2	94	67	27	75	S.W	5,633	24	5.35	13	
August.....	30.045	30.062	30.025	30.048	30.012	29.975	29.998	30.278	29 820	.458	81.7	77.9	87.1	80.1	97	68	29	75.9	S.W	5,312	24	9.32	12	
September ..	30 049	30 065	30.026	30.057	30.015	29.976	30.007	30.281	29.597	.684	76.5	72.8	81.5	75.3	90	62.5	27.5	78.4	N.E	5,365	36	5.83	8	
October	20.059	30.079	30.039	30.059	30.019	29 979	29 999	30.238	29.499	.739	69.5	65	75.4	68 2	83	52	31	77.6	N.E	6,343	40	6.56	7	
November...	30.153	30.171	30.124	30.164	30.111	30.064	30.104	30.490	29.700	.790	55.4	50.7	60.8	54.6	80	35.5	44.5	76.1	N.E	5.967	28	3.54	4	1
December...	30.173	30.181	30.136	30.172	30.121	30.076	30.112	30.632	29.826	.806	48.5	44.1	53.6	47.9	69	24	45	77.4	S.W	5,735	36	3.99	9	
Sums.....	*361.249	361.452	360.958	361.330	360.782	360.288	360.660	364.859	356.245	8.614	*804.7	757.9	868.3	788.4	1022	567.5	454.5	*910.8		10,948	351	57.01	111	1
An. Means..	*30.104	30.121	30.080	30.111	30.065	30.024	30.055	30.505	29.687	.718	*67.1	63.2	72 4	65.7	85.2	47.3	37.9	*75.9	S.W	5,912	29.3	4.75	9 3	

* Sums and Means of 11 Months and 28 Days.

GENERAL REMARKS.

January—Barometer above the normal; mean temperature 5.2 degrees higher than the average; rainfall 2½ inches less than the average.
February—Barometer about normal; great range of pressure; mean temperature 5.2 degrees higher than the average; rainfall 2 inches less than usual amount.
March—Barometer about normal; mean temperature 4.4 degrees higher than the average; rainfall in excess of usual quantity.
April—Barometer about normal; mean temperature 2.4 degrees higher than the average; rainfall about one-half the usual amount.
May—Barometer about normal; mean temperature 1.1 degrees lower than the average; rainfall nearly 2 inches less than the average amount for this month.
June—Barometer about normal; mean temperature about the average; rainfall 3.26 inches in excess of the June average.
July—Barometer about normal; mean temperature 1.5 degrees lower than the average; rainfall slightly deficient; large number of rainy days.
August—Barometer about normal; mean temperature about the average; rainfall greatly in exeess of usual quantity for August.
September—Barometer about normal; mean temperature about the average; rainfall about 1 inch below the average for this month.
October—Barometer below the normal; mean temperature 3.1 degrees higher than the average; heavy gale, and about the usual rainfall.
November—Barometer about normal; mean temperature 1.8 degrees lower than the November average; rainfall about the average.
December—Barometer about normal; mean temperature 2.4 degrees lower than the December average; rainfall about the average.

STATION: CHARLESTON, S. C.

J. H. SMITH,

Examined and corrected at the Office of the Chief Signal Officer, U. S. A., on January 16th, 1883.

Sergeant Signal Service, U. S. A.

[OMITTED IN YEARLY REPORT OF 1879.]

METEOROLOGICAL SUMMARY.

DATE.	BAROMETER.										THERMOMETER.							WIND.						
	MEAN OF							RANGE.			MEAN OF				RANGE.									
		TELEGRAPHIC OBSERVATIONS:										TELEGRAPHIC OBSERVATIONS.												
1879.	Local Observations.	Corrected for Temperature, Instrumental Error and Elevation.			Corrected for Temperature and Instrumental Error only.			Highest.	Lowest.	Difference.	Local Observations.				Maximum.	Minimum.	Difference.	Mean Relative Humidity. Local Observations. (Fr. Ct.)	Prevailing Direction.	Total No. Miles.	Max'm Velocity During Month	Amount Rain or Melted Snow. (Inches and Hundredths.)	No. of Days on which Rain or Snow Fell.	No. of Auroras.
		A. M.	P. M.	Mid-night.	A. M.	P. M.	Mid-night.					A.M.	P.M.	Mid-night										
January	30.220	30.245	30.185	30.232	30.176	30.121	30.164	30.585	29.796	.789	50.3	45.5	54.7	48.5	80	23	51	65.4	S.W	5,566	30	1.74	6	
February	30.124	30.140	30.095	30.149	30.077	30.034	30.087	30.454	29.778	.676	49.6	45.5	53.6	48.9	72	30	42	62.7	S.W	5,119	25	4.56	13	
March	30.135	30.168	30.091	30.133	30.111	30.035	30.076	30.609	29.382	1 227	60.2	55.4	65.3	58.9	78	35	43	68.5	S.W	4,867	28	1.44	9	
April	30.021	30.052	29.971	30.025	29.992	29.916	29.969	30.478	29.584	.894	63.8	59.5	68.9	62.3	81	39	42	64.2	S.W	5,620	25	6.29	11	
May	30.035	30.059	30.013	30.047	30.004	29.958	29.990	30.365	29.810	.555	72.8	74.1	77.9	76.8	88	55	33	69.9	S.W	8,176	24	3.36	9	
June	30.038	30.066	30.015	30.043	30.011	29.962	29.989	30.258	29.759	.499	79.6	76 2	83.5	76.7	92	60	32	66.2	S.W	5,563	24	3.29	5	
July	30.019	30.040	29.998	30.029	29.986	29.945	29.975	30.260	29.704	.555	84.1	80.6	88.	81.0	104	71	33	68.3	S.W	6,264	31	7.77	6	
August	29 993	30.017	29.970	29.994	29.961	29.916	29.941	30.246	29.696	.550	80.4	77.6	83.1	77.8	95	62	33	72.8	S.W	5,801	26	4.50	12	
September	30.084	30.099	30.064	30.093	30.037	30.009	30.038	30.307	29.901	.406	75.	71.1	78.2	72.9	89	54	35	72.8	N.E	5,908	25	5.90	9	
October	30.133	30.159	30.109	30.135	30.104	30.054	30.079	30.597	29.799	.798	70.6	67.5	73.5	69 0	87	44	43	77.5	N.E	6,531	24	6.74	10	
November	30.214	30.241	30.179	30.204	30.216	30.123	30.157	30.492	29.877	.615	58.7	54.0	64.6	56.8	82	30	52	69.0	N.E	5,850	23	3.70	5	
December	30.190	30.212	30.158	30.193	30.154	30.102	30.136	30.399	29.736	.663	58.3	53.2	63.8	56.8	75	34	41	76.9	S.W	4,925	19	1.00	10	
Sums	361.206	361.498	360.848	361.287	360.832	360.175	360.603	365.05	356.823	8.227	803.4	760.2	855.1	786.4	1023	537	486	834.2	S.W	70,190	304	50.26	105	
An. Means	30.100	30.125	30.071	30.107	30.069	30.015	30.050	30.421	29.735	.686	66.9	63.4	71 3	65.5	85.2	44.7	40.6	69.5	S.W	5,849	25	4.19		

GENERAL REMARKS.

January—Barometer about normal; mean temperature about the average; rainfall slightly deficient.
February—Barometer about normal; mean temperature 2.7 degrees below the average; rainfall about the average for February.
March—Barometer about normal; great range of pressure; mean temperature 2.1 degrees higher than the average; rainfall deficient.
April—Barometer about normal; mean temperature about the average; rainfall .61 above the average.
May—Barometer about normal; mean temperature above the average; rainfall about the May average.
June—Barometer about normal; mean temperature about normal; rainfall 1.57 below the average.
July—Barometer about normal: mean temperature about the average; rainfall about the usual quantity for July.
August—Barometer slightly above the normal; mean temperature about the average; rainfall .26 above the average.
September—Barometer about the normal; mean temperature 1 degree below the average; rainfall .56 below the average.
October—Barometer about the normal; mean temperature about the average; rainfall .09 below the usual quantity for October.
November—Barometer about the normal; mean temperature about the average; rainfall about the usual quantity.
December—Barometer about the normal; mean temperature 7.3 degrees above the average; rainfall 2.84 above the average.

STATION: CHARLESTON, S. C.

J. H. SMITH,
Sergeant Signal Service, U. S. A.

The following exchanges and papers have been received as gifts or in exchange for our last Annual Report, viz.:

Fourth Annual Report of the State Board of Health of Illinois.

Paper entitled "Immigration Inspection Service in Michigan."

Census Returns from Division of Results, U. S. Census Office.

Report of the Secretary of the Interior for the fiscal year ending June 30th, 1882.

Circulars of information of the Bureau of Education, Nos. 3, 4 and 5, 1882, from Department of the Interior.

National Pedagogic Congress of Spain, from same.

High School for Girls, from same.

Comparative Statistics of Education in Sixty Counties, from same.

Report of the Surgeon General of U. S. Navy, Vol. VI, 1880.

State Boards of Health—Their Object and Use, &c., issued by order of the Indiana State Board of Health.

Fourth Annual Report of the State Board of Health, Lunacy and Charity of Massachusetts.

Transactions of the New Hampshire Medical Society, 1883.

First Report of the State Board of Health of the State of Arkansas.

Transactions of the Medical Society of North Carolina, 29th Year, and of the North Carolina Board of Health.

Annual Report of the Department of Health of the City of Charleston, 1882.

Seventh Report of the State Board of Health of California from July 1st, 1880, to December, 1881.

Eighth Report of the State Board of Health of Minnesota, 1879–80.

First Annual Report of the State Board of Health of Indiana.

Annual Report of the Health Officer of the City of Burlington, Vermont, January 1, 1883.

Paper entitled "Rules and Regulations Adopted by the State Board of Health of Mississippi for the Government of Boards of Censors in their Examinations for License to Practice Medicine under the Provisions of an Act to Regulate the Practice of Medicine in the State of Mississippi;" an Act to Regulate the Practice of Medicine in Mississippi.

Annual Address before the New Orleans Auxiliary and Sanitary Association by Edward Fenner, Vice President.

Paper entitled "What has been Done and What Remains to be Done to Render New Orleans Healthy and Prosperous."

Report of the State Board of Health of Connecticut, 1882.

Report of the State Board of Health of Michigan, 1882.

Monthly Circular of the State Board of Health of California, with

abstract of the reports of deaths and their causes in the principal towns of California.

Financial and Commercial Chronicle and Hunt's Merchants' Magazine, (received weekly.)

Proceedings of the Sanitary Council of the Mississippi Valley at its annual meeting at Jackson, April 3d and 4th, 1883.

Tenth Annual Report of the Board of Health of the City of New Haven, 1882.

Report of Proceedings of the Illinois State Board of Health, quarterly meeting April 12 to 14, 1883.

Paper from the Bureau of Education, Department of the Interior, entitled "Planting Trees in School Grounds."

Paper from Illinois State Board of Health entitled "Medical Colleges."

Report of the Chief Signal Officer, War Department, U. S. A., for 1880.

Petition in behalf of State medicine to the General Assembly of the State of Louisiana by the Louisiana State Medical Society, Orleans Parish Medical Society and the New Orleans Medical and Surgical Association, 1883.

Circular of Information of the Bureau of Education, No. 2, 1882.

Fifth Annual Report of the State Board of Health of Rhode Island, ending December 31, 1882.

Seventh Annual Report of the State Board of Health of Wisconsin.

Report of the Health Officer of the District of Columbia, 1882.

Ten copies Report of the Proceedings of the Illinois State Board of Health, quarterly meeting June 21, 1883.

Weekly Mortuary Reports of the City of Charleston, S. C.

Circular entitled "The Powers and Duties of Local Boards of Health," issued by the State Board of Health of Wisconsin.

Paper entitled "The Work of Health Officers and of Local Boards of Health in Michigan, including Duties under Laws Amended and Passed in 1883."

Monthly Summary of Meteorological Observations taken at the Office of the Chief Signal Officer in Washington, D. C., for each month in year, together with a Comparative Statement of Daily Mortality, 1882.

Fifth Annual Report of the State Board of Health of Kentucky.

Circulars of Information Nos. 2 and 3, 1883, from the U. S. Bureau of Education, together with paper entitled "Answers to Inquiries About the U. S. Bureau of Education and Its Work," by Chas. Warren, M. D.

Circulars of Information Nos. 2 and 3, 1883, from U. S. Bureau of Education.

"Sanitarian" (weekly) for 1883 (purchased).

I regret to state that the meteorological work initiated by the Board of Health two years ago has not so far proved a success—that of the present year less so than that of the previous one—the result being unsatisfactory and discouraging. It has been exceedingly difficult to find intelligent gentlemen with sufficient leisure to enable them unremunerated to undertake the work. In several instances where they have shown a desire to comply with the request of the Board by accepting temporarily the position of volunteer observers, and have evinced great interest and proficiency in making the observations and preparing the report, in a few months they have been compelled to withdraw in consequence of greater claims upon their time and attention, and months may elapse before their places can be filled.

The following are the only reports received during the past year:

From Aiken: Dr. W. H. Geddings has sent in reports for November, 1882, and January and February, 1883. Dr. Geddings, in consequence of ill health and absence from home, was prevented from continuing the observations.

From Spartanburg: Prof. D. A. DuPre, of Wofford College, acted as observer as long as his college duties allowed, and filled the position most efficiently and satisfactorily. He furnished reports for October, November and December, 1882, and January, February, March, April, May and June, 1883, at which time he gave up the work, and his place is still vacant.

From Darlington: Only one report has been received—that for October, 1882. Dr. Eiseman, the observer at that point, was compelled by his professional duties to resign the position, and it is still unfilled.

Due West, Abbeville County: Prof. Wm. Hood, of Erskine College, has only recently taken charge of the instruments previously held by Prof. Bittle at Newberry, and has sent a report for September, 1883.

I have been addressed on several occasions by the Sub-Boards, or members thereof, requesting definite instructions as to their duties and powers, and their relationship to the State Board of Health and to the local municipal authorities and their communities, and have been compelled to give such explanation and advice as seemed to me most judicious and proper, but which, in case of legal involvment, might not stand the test of a trial; and it is to be hoped that the Bill, emanating from this Committee and now before the Legislature, entitled "A Bill to establish Boards of Health, and for the better protection of the public health," may pass to its enactment, and so set these matters at rest.

There are other questions of importance contained in the reports of the Sub-Boards which invoke the intelligent notice and action of this Board, and I would respectfully call the attention of the members thereto.

Respectfully submitted.

HENRY D. FRASER, M. D.,
Secretary Executive Committee State Board of Health.

Date.	From Whom Received.	Amount.
1882.		
November 1.	To balance in hand	$644 40
1883.		
January 21.	To received of Comptroller General	500 00
April 5.	To received of Comptroller General	500 00
July 6.	To received of Comptroller General	500 00
October 9.	To received of Comptroller General	500 00
		$2,644 40
	Amount carrried forward	$2,644 40

during the Fiscal Year Ending October 31st, 1883.

DATE.	TO WHOM PAID.	AMOUNT.	VOUCHER.
1882.			
November 9.	By paid Walker, Evans & Cogswell.....	$ 3 25	1
12.	By paid H. D. Fraser, expenses as delegate to National Sanitary Exhibition.....	43 85	2
16.	By paid James Woodrow his bill.....	7 50	3
20.	By paid Prof. D. A. DuPre for advances, as per voucher.....	13 25	4
20.	By paid H. D. Fraser, Secretary, advances for sundries.....	1 78	5
25.	By paid C. A. Calvo's bill for printing one thousand reports of State Board of Health, &c.....	453 25	6
29.	By paid C. A. Calvo, Jr., express charges on package and reports to authors.....	1 25	7
1883.			
January 1.	By paid H. D. Fraser, Secretary, one quarter's salary to date.....	125 00	8
25.	By paid T. G. Simons, M. D., per diem at meeting January 4th, $5; bill for engrossing memorial to Congress and postage, $7.48.....	12 48	9
26.	By paid H. D. Fraser, M. D., per diem at meeting January 4th.....	5 00	10
26.	By paid W. E. Stoney, Jr., Comptroller General, mileage and per diem at meeting January 4th.....	28 00	11
26.	By paid Edward Perry's bill.....	9 13	12
28.	By paid F. F. Gary, M. D., mileage and per diem at meeting January 4th.....	37 40	13
February 1.	By paid J. Ford Prioleau, per diem at meeting January 4th.....	5 00	14
1.	By paid P. A. Wilhite, M. D., mileage and per diem at meeting January 4th.....	40 70	15
3.	By paid C. A. Calvo, Jr., for wrapping, packing and expressage and postage of Reports State Board of Health.....	28 15	16
7.	By paid J. R. Bratton, M. D., mileage and per diem at meeting January 4th.....	36 80	17
March 1.	By paid H. D. Fraser for advances, as per		
April 1.	voucher.....	14 40	18
	By paid H. D. Fraser, Secretary, one quarter's salary to date.....	125 00	19
	Amount carried forward.....	$991 19	

DATE.	FROM WHOM RECEIVED.	AMOUNT.
1883.		
	Amount brought forward.....	$2,644 40
	Amount carried forward.....	

during the Fiscal Year Ending October 31st, 1883.

DATE.		TO WHOM PAID.	AMOUNT.	VOUCHER.
1883.		Amount brought forward.....	$ 991 19	
April	5.	By paid P. A. Wilhite, mileage and per diem at meeting April 5th.....	40 60	20
	5.	By paid F. F. Gary, M. D., mileage and per diem at meeting April 5th..	38 50	21
	5.	By paid C. R. Taber, M. D., mileage and per diem at meeting April 5th.....	25 00	22
	5.	By paid J. R. Bratton, M. D., mileage and per diem at meeting April 5th.....	36 80	23
	5.	By paid W. E. Stoney, Comptroller General, mileage and per diem at meeting April 5.....	28 00	24
	5.	By paid C. R. Miles, Attorney General, per diem at meeting April 5th	5 00	25
	5.	By paid T. G. Simons, M. D., per diem at meeting April 5th.....	5 00	26
	5.	By paid J. Ford Prioleau, per diem at meeting April 5th.....	5 00	27
	5.	By paid H. D. Fraser, M. D., per diem at meeting April 5th.....	5 00	28
May	10.	By paid News and Courier for advertising quarantine regulations.....	9 90	29
	10.	By paid Roswell T. Logan for advertising quarantine regulations in Beaufort, Port Royal and Georgetown papers.....	21 00	30
	23.	By paid W. G. Jeffords for book shelves....	5 00	31
June	16.	By paid T. Grange Simons, M. D., Chairman Committee on Quarantine, his bill for telegrams and postage and expenses on a visit of inspection to quarantine stations.	31 07	32
July	1.	By paid H. D. Fraser, M. D., Secretary, one quarter's salary to date.....	125 00	33
		By paid Edward Perry's bill to date.....	24 65	34
	2.	By paid J. Ford Prioleau, M. D., mileage		
	6.	and per diem at meeting July 6th.....	23 00	35
	6.	By paid P. A. Wilhite, M. D., mileage and per diem at meeting July 6th.....	27 65	36
	6.	By paid C. R. Taber, M. D., mileage and per diem at meeting July 6th.....	8 00	37
	6.	By paid W. E. Stoney, Comptroller General, per diem at meeting July 6th.....	5 00	38
		Amount carried forward.....	$1,460 36	

DATE.	FROM WHOM RECEIVED.	AMOUNT.
1883.		
	Amount brought forward.....	$2,644 40
	Total.....	$2,644 40

during the Fiscal Year Ending October 31st, 1883.

DATE.	TO WHOM PAID.	AMOUNT.	VOUCHER.
1883.	Amount brought forward.....	$1,460 36	
July 6.	By paid F. F. Gary, M. D., mileage and per diem at meeting July 6th.....	25 50	39
6.	By paid J. R. Bratton, M. D., mileage and per diem at meeting July 6th.....	19 40	40
6.	By paid H. D. Fraser, M. D., mileage and per diem at meeting July 6th.....	23 00	41
6.	By paid T. Grange Simons, M. D., mileage and per diem at meeting July 6th.....	23 00	42
6.	By paid C. R. Miles, Attorney General, mileage and per diem at meeting July 6th	23 00	43
October 1.	By paid H. D. Fraser, Secretary, one quarter's salary to date.....	125 00	44
1.	By paid H. D. Fraser, Secretary, for advances, as per voucher.....	5 33	45
10.	By paid P. A. Wilhite, mileage and per diem at meeting October 9th.....	22 65	46
10.	By paid F. F. Gary, M. D., mileage and per diem at meeting October 9th.....	20 30	47
10.	By paid J. R. Bratton, mileage and per diem at meeting October 9th, together with balance ($4.40) underpaid at meeting July 6th.....	28 20	48
10.	By paid C. R. Taber, M. D., mileage and per diem at meeting October 9th.....	13 00	49
10.	By paid H. D. Fraser, mileage and per diem at meeting October 9th.....	23 00	50
12.	By paid C. R. Miles, Attorney General, mileage and per diem at meeting October 9th.....	23 00	51
12.	By paid T. Grange Simons, M. D., mileage and per diem at meeting October 9th.....	23 00	52
12.	By paid J. Ford Prioleau, mileage and per diem at meeting October 9th.....	23 00	53
12.	By paid W. E. Stoney, Comptroller General, per diem at meeting October 9th.....	10 00	54
		$1,890 74	
	Balance.....	753 66	
		$2,644 40	

HENRY D. FRASER, M. D.
Treasurer Executive Committee State Board of Health.

Report of the Committee on the Medical Topography of the State of South Carolina.

F. F. GARY, M. D., CHAIRMAN.

[NOTE BY THE COMMITTEE.—In the preparation of this report, the Committee have not hesitated to use material wherever they could find it. They take this occasion to acknowledge their indebtedness in this respect to the excellent report of Dr. Eli Geddings, to the Medical Association of South Carolina, in 1852; likewise to the series of articles on South Carolina contributed to the Agricultural Department by the Hon. Harry Hammond; also to the geological surveys of the State by Tuomey, Ruffin and Leiber. The Committee have arranged and embodied this material, supplying, to the best of their ability, any deficiencies that may exist, from their own personal knowledge of the several Counties of the State.]

I. *Geographical position and physical features of the State.*

South Carolina, in its general aspect, is of an irregular triangular shape, and is interposed between North Carolina on the one hand and Georgia on the other. It is situated between 32° 4′ 30″ and 35° 12′ North latitude, and 78° 25′ and 83° 49′ West longitude from Greenwich. Bounded on the Northeast and North by North Carolina, on the Southwest by Georgia, from which it is separated throughout its entire length by the Savannah River and its tributary streams; and on the Southeast by the Atlantic Ocean, it stretches out for a considerable distance along this latter, so as to present a large extent of sea coast, diversified by numerous islands, inlets and the estuaries of rivers. On the North it approaches the Alleghany Mountains, being in length about 190 miles and in breadth 160, and comprising within its limits upwards of 34,000 square miles. Of this area, some 7,500 square miles consist of improved lands; the remaining 16,500 square miles are in forests, swamps and marsh, almost all of which may be easily reclaimed and improved, most of it being naturally by far the most fertile land in the State. The apex of the triangle rests upon the summits of the Blue Ridge Mountains. The base, sweeping with a gentle S shaped curve from the Southwest to the Northeast, forms part of the great Atlantic shore line of North America—a line parallel, or nearly so, with about one-half the coast lines of the continents of the earth, as witness the Northwest coast lines of

America, Europe and Africa, and the Southeast coast lines of South America, Africa and Asia.

Parallel also with this coast line trend the divisions between the various geological formations of the State. First, extending not more than ten miles inland, we have the strata of the post pliocene, resting on the eocine formations, which, with here and there a patch of the miocene and cretaceous, stretch back into the interior about one hundred miles, until they reach the crystalline rocks, whose well marked line has, during the entire past history of the State, divided it socially, politically and industrially, as well as physically, into what has always been known as the up country and the low country of South Carolina. This division of the State into up country and low country by the line bounding the Southern margin of the crystalline rocks, tending Northeast and Southwest across its central portion, is strongly marked in everything—in the hills and high lands of the up country with their heavy red clay soils and the gentle slopes or wide flats of lighter colored sandy loam of the low country; in the rapid, turbid water courses of the one, and the slow, clear currents of the other; in the vegetable growth, the chestnut, the deciduous oaks and the short leaf pine occupying the up country, and the long leaf pine, the magnolia and the evergreen oaks, with the long grey moss, marking the low country; and, lastly, in the manners, character, ancestry, and even in the very tones of voice, of the inhabitants. Passing beyond the lower margin of the crystalline rocks and proceeding towards the mountains, we find in all the various strata, in the order of their super-position—one above the other, the limestone, the itacolumite, the clay talc and mica slates, the gneiss and the granite,—that the same parallelism is maintained throughout, the prevailing strike in all being N. 20° to 30° E. If we regard the movements of the atmosphere, we find here also that the predominating currents of the air move in a Northeasterly and Southwesterly direction.

The country included within these boundaries is highly diversified, not only in physical aspect, but likewise in soil, in its natural and agricultural products, in climate, and many other characteristics.

From the Atlantic Ocean to the extreme Northern boundary of the State, the face of the country presents a gradual ascent, for the most part uniform, for a distance of seventy or eighty miles; then irregular and undulating, until a height is attained, at the summit of its loftiest mountain, of 3,200 feet above the level of the ocean. The whole extent of the State is traversed by numerous rivers, some of which wind their devious course through its entire length and breadth, while innumerable smaller streams intersect it at almost every point, everywhere contributing their ceaseless currents to the larger torrents, which collectively roll on to empty themselves into the mighty ocean. A line drawn from a point on the

Savannah River three miles above Hamburg and running thence Northeast to where the Great Pee Dee River crosses from North to South Carolina defines in a general way the division of the State into upper and lower South Carolina.

LOWER SOUTH CAROLINA.

In approaching the coast from the sea about the time the white caps of first breakers are seen, a long, low line of smooth, hard, sandy beach, for the most part of snowy whiteness, makes it appearance. Immediately inland from the beach swell the undulating ridges of blowing sand, ripple-marked by the action of the wind, in striking similarity to the wave marks of water.

Here the palmetto meets you, standing often solitary and alone, a conspicuous landmark in the picture. Beyond rise the dark green turrets of the pine, beneath which a tangled growth of myrtles and vines is found. Sometimes more than one ridge of sand hills with an average elevation of 10 or 15 feet must be traversed before the borders of the salt marsh is reached. The salt marshes, their stiff green reeds rising out of the black ooze visible at low tide, and at high apparently floating on the water, with here and there a stray palmetto or a group of undersized live oaks, their limbs covered with the long grey moss, form the scarcely varying frame-work of all landscapes of the sea islands. Everywhere these marshes are penetrated by salt rivers and creeks of greater or less width and depth and surround islands varying from a few acres to many square miles in area. These islands attain a height of 10 to 15 feet—rarely of 25 or 30—above high tide. The mean rise and fall of the tides is 6.9 ft. at the mouth of the Savannah River; 6.7 ft. at Port Royal; 5.1 ft. at Charleston harbor, and 3.5 ft. at Georgetown entrance, showing a marked diminution as you advance Northeast along the coast. The influence of the tide extends to a distance of 30 miles in a direct line from the sea up the Savannah River and about 15 miles up the Santee. Salt water, however, usually ascends the Santee River only about 2 miles, and even when the current of the river is diminished in seasons of great drought not more than 4 miles. Up Georgetown Bay it reaches farther and is sometimes injurious to the crops at a distance of 14 miles. What has been said of the Santee is true to nearly the same extent of the Savannah River.

Contiguous to and immediately inland from the coast region lies the lower pine belt or Savannah region of South Carolina and bears a striking analogy in physical features to those of the coast region. Numerous large fresh water rivers replace the great salt water rivers and arms of the sea along the coast, and the interminable network of ex tensive swamps and bays recall the salt marshes of the coast. Eight large rivers,

receiving all the water that falls in South Carolina, and a large proportion from the water shed of North Carolina, besides several smaller rivers and innumerable lesser streams, traverse this region and furnish more than 1,000 miles of navigable waters. The general appearance of the country is low and flat. The uniform level of the surface is scarcely broken anywhere, except here and there on the banks of the streams by the occurrence of slightly rolling lands. Its maximum elevation above tide water is reached at the village of Branchville on the South Carolina Railroad, and is 134 feet. From the data furnished by the surveys of the railroads traversing this region, it appears that the average slope is about 3½ feet per mile. This slope, however, seems to be much more rapid in the Western and narrower part than it is in the Eastern and border portion of the belt. Altman's, on the Port Royal Railroad, is 105 feet above mean high tide at the head of Broad River, 18 miles distant in a direct line, giving a fall of 5.8 feet per mile. Branchville is 134 feet above the sea, which at North Edisto inlet near Jehosee Island is 48 miles distant, making the fall 2.8 feet per mile. In the East the railroad bridge of the Great Pee Dee is 52 miles from the sea and has an elevation above it of only about 59 feet or but little more than one foot to the mile. This fall could, with skillful engineering, be sufficient for thorough drainage. Left as it is, however, wholly to the operations of nature, this desirable object is far from being accomplished, and the broad but slow currents of the tortuous streams never free the swamps and low lands of their superfluous water. So level is the country and so abundant the supply of water, that the engineering skill and outlay required to perfect its drainage would, at comparatively small additional outlay, render the larger part of the surface susceptible to cultivation by irrigation.

MIDDLE CAROLINA.

We next come to that portion known as the middle country of South Carolina, as distinguished from the upper and low country, between which it lies. It may be defined as that portion of the State lying between an elevation above the sea of 130 to 250 feet.

The land is level, without being flat, and is sufficiently rolling to insure good drainage for the most part. While the general slope follows the Southeasterly course of the rivers, the land rises more rapidly in the West, which gives the region a marked Easterly slope in addition to its Southeastern inclination. Thus in the West, Appleton, on the Port Royal Railroad, 46 miles distant from tide water, has an elevation of 259 feet, while Orangeburg, on the South Carolina Railroad, 65 miles from tide water, has only the same elevation, and Wedgefield, on the Manchester and Wilmington Road, 75 miles from tide water, has an elevation of only 236 feet. These being the highest points on the respective roads.

UPPER SOUTH CAROLINA.

The face of the country is generally hilly and undulating, so that the heaviest rains that fall drain readily into the adjacent streams, and the water seldom accumulates upon the surface to any great extent, except in low flat situations, where the declivity is not sufficient to admit its ready escape. Even here, however, occasional tracts of country are met with in which during wet seasons water accumulates in great quantity, either incorporated in the soil or collected upon the surface, in the form of ponds or lagoons, many of which besides are fed by natural springs. In periods of drought, however, even these become perfectly arid and parched. In addition to these, it should be mentioned that in nearly all the bottom lands there are many low places, in which, after extensive inundations, water remains stagnant and putrescent until dried up by the influence of solar heat and are the sources that generate the malarial fevers so common along the water courses. In the hilly country where much of the land has been cleared and brought into cultivation the extensive washings from the hill sides have choked up the courses of streams and filled up the swamps, in many instances to the extent of several feet, often diverting the currents from their native channels and occasioning the death and decay of the native forest growth of such situations.

The extreme Northwestern portion of South Carolina, embracing the Counties of York, Spartanburg, Greenville, Pickens and Oconee Counties, presents a rolling table land, broken and hilly on the margin of the streams. It has a general elevation above the level of the sea of 1,000 to 1,500 feet.

The gently undulating surface extends to the mountains, whose rock-bound walls often rise suddenly to their greatest height. The Southeastern face of King's Mountain rises perpendicularly 500 feet above the plain, and its Northwestern slope descends gently towards the Blue Ridge Mountains. Table Rock also rises 800 feet vertically or a little over, hanging above the Southeastern terrace at its base, formed of the loose fragments that in the course of ages have fallen from above. The steep ascent of these mountains from their South Carolina or Southeastern face, and their gradual slope to the Northwest, where the mountains of North Carolina rise apparently from a level country, is the reverse of the prevailing rule on the Atlantic slope, which is that the short, steep sides face Northwest, and the long, gentle slopes face Southeast. Lieber thinks that these mountain cliffs indicate the occurrence here, in the remote past, of a great fissure or crevasse in the earth's crust, a gigantic fault, when the Southern slopes fell down hundreds of feet and exposed the precipitous rock walls that now face the Southeast.

The elevation above the mean level of the sea of the following points in upper South Carolina were determined by the United States Coast and Railroad Surveys:

Belton, Anderson County, 880 feet. Mean elevation of Charlotte, Columbia and Augusta Railroad is 575 feet. That of the Atlanta Air Line to Charlotte 910 feet. Between these two lines, a distance of 90 miles, there is a general rise of the surface of 335 feet or less that 4 feet to the mile. This is a gentler slope than that of the tertiary or low country, the difference in elevation fron the sea to its Northern border being about 100 miles and the difference in elevation something more than 500 feet or over 5 feet to the mile.

King's Mountain, 1,692 feet; Paris Mountain, (near Greenville,) 2,054 feet; Cæsar's Head, 3,118 feet; Mount Pinnacle, (near Pickens,) the highest point in South Carolina, 3,436 feet.

The bracing and healthy climate of this mountain region, its beautiful scenery, the bold mountain outlines, the rich luxuriance of every growth, no stunted plant on mountain side or summit, every part, even the crevasses of the rocks, covered with trees and shrubs of some kind, all full of life and vigor, the clear, swift streams that everywhere leap in a succession of cascades from crag and cliff and sparkle in their course along the narrow but fertile valleys, have made it for generations a health and pleasure resort during Summer.

GEOLOGICAL CHARACTERISTICS OF THE STATE.

The prominent physical features of the State have been briefly sketched in a previous section of this report.

It will be useful in the present place to consider these in connection with the leading geological phenomena, and, besides, to examine more particularly into the peculiarities which both present within the limits of the various natural and artificial subdivisions of South Carolina.

Examined in its totality, in relation to its geological character, South Carolina may be divided into two parts of nearly equal extent. The first, comprising all the lower part of the State, and extending from the shores of the ocean to a distance of one hundred and twenty miles into the interior, belongs exclusively to the tertiary formation, in which all the essential features of the several divisions of that geological epoch are found, more or less strikingly characterized at different points. Of these, however, the pliocene and post pliocene are by far the most extensively distributed, being spread out over nearly the whole of the Districts of Charleston, Berkeley, Colleton, Beaufort, Georgetown, Horry, Williamsburg, Marion, Darlington, Marlborough, Sumter, and a considerable portion of Chesterfield, Richland, Orangeburg, Hampton and Barnwell. In many localities within the limits here specified the other formations

characteristic of the tertiary period are found more or less strongly exposed —the miocene, according to Professor Tuomey's map, especially in the Counties of Charleston, Horry, Marion, Berkeley, Darlington and Sumter; the eocine in nearly all the Counties of the lower division of the State, and the lower eocine, or buhr-stone formation, throughout a great part of the Counties of Barnwell, Edgefield, Aiken, Orangeburg, Lexington and Richland, through which it crops out, indicating the natural limit of the tertiary formation in that direction and the commencement of the primitive or granitic formation, and consisting essentially of granite and gneiss rocks, overlaid in many situations by the metamorphic stratified rocks.

To enter into a minute description of the relative position and extent of these several formations belonging to the tertiary period would be of little interest in a medico-topographical point of view. It may be remarked that the fossiliferous beds composing the different formations of the tertiary have interposed between them variable layers of sand, mud, and, in many places, clay, which give them great irregularity and often render it difficult to trace their precise limits. Besides these must be mentioned beds of pebbles, gravel, &c., intermixed with the tertiary, which, according to Professor Tuomey, are the debris of rocks of the upper part of the State, brought down by the action of water, and must not be confounded with diluvium proper, as they contain no angular blocks, nor are the pebbles of sufficient size to entitle them to the name of bowlders. The same author remarks that "the beds of sand overlying the fossiliferous beds correspond very nearly with the beds of moving sand along the coast. This is not so obvious South of Charleston, as it is on the coast of Horry, where the line separating the recent sand hills from the rest of the surface, between the Waccamaw and the coast, cannot be determined. The whole country, excepting where a swamp or a marsh intervenes, presents an undulating surface, such as might result from a partial swelling of the moving sand hills distributed along the coast at present." (P. 199.) The blending of these strata on the surface, he adds, renders it impossible to distinguish the arenacious beds of the different tertiary formations where they do not enclose organic remains, The sand beds of the buhr-stone are intermingled with those of the pliocene, which pass into the superincumbent beds of the post pliocene, and the latter are, in turn, blended with the moving sands of the coast. The cretacious formation is found underlying the tertiary; and while all these overlap the granite, at the boundary line above alluded to as forming the limit between the tertiary and primitive regions of the State, we find the calcareous beds extending from the line of the buhr-stone towards the ocean, forming an immense deposit of several hundred feet in thickness, constituting what Professor Tuomey has designated the *Charleston basin*,

which he supposes to extend over an area of seventy-five miles in width by sixty in breadth. A great portion of this peculiar formation is composed of an immense bed of marl, intermixed with fossil shells and various other organic remains. It underlies the city of Charleston and extends out into the ocean, and is found near the coast at variable depths below the surface, generally from forty to sixty feet. It has been perforated by the borings of the artesian well, now in progress in the city, and is there several hundred feet in thickness.

AGRICULTURAL REGIONS AND PRODUCTS.

In addition to the two grand divisions of South Carolina (already dwelt upon) into the "up country" and "low country," it will facilitate the consideration of the agricultural characteristics of the State to treat of them under certain minor natural and parallel subdivisions, which are quite well marked. These are in number as follows:

I. *The Coast Region.*—It coincides very nearly with the post-pliocene formation, rarely extending inland more than ten miles from the shore line. It consists—

1st. Of the Sea Islands lying South of Santee River, and containing about 800 square miles.

2d. The salt marshes uncovered at low tide bordering and intercalating with the Sea Islands, capable of being reclaimed, and embracing 600 square miles.

3d. The continuous shore line North of Santee River and Georgetown entrance, 300 square miles in extent.

II. *The Lower Pine Belt or Savannah Region, lying inland and parallel with the coast region.*—It has a width of about 50 miles, attains a maximum elevation above the sea of 130 feet, and covers 7,000 square miles. It belongs to the eocene formation, and includes the Ashley River fish bed, the Charleston marl basin and the deposits of phosphate rocks. It may be divided—

1st. Into the region below the influence of the tides, the rice fields of South Carolina.

2d. The region above tide water, notable for its turpentine farms and its great cattle ranges.

III. *The Upper Pine Belt or the Central Cotton Belt, having a width of* 20 *to* 40 *miles, embracing* 4,500 *square miles, and covered with a growth of long leaf pine, mixed with oak and hickory.*—The soil consists of a light sandy loam underlaid by red and yellow clays. It has an elevation above the sea of from 130 to 250 feet, and is in general characterized by what are known as sweep wells. The water being obtained from wells 15 to 25 feet in depth, requiring no curbing, and the water drawn by a pine

pole balanced as a lever, on the principle of the old Egyptian water-drawers.

IV. *The Alluvial Lands.*—Large inland swamps, bays and river bottoms of unsurpassed fertility, covering 5,500 square miles, interspersed among the two regions last named.

V. *The Sand Hill region, lying immediately North of No.* III.—A remarkable chain of sand hills, attaining an elevation above the sea of 600 to 700 feet, and extending across the State from Aiken to Chesterfield Counties. These sand hills, with their heavy pine forests and terebinthinate atmosphere, so much sought after as a specific for lung diseases, cover 2,400 square miles, and embrace two other formations of much interest agriculturally, viz.:

1st. The red hills, lying, if anything, below the sand hill belt, having a heavy oak growth and a red clay soil, with an elevation above the sea of 500 to 600 feet, and covering some 500 square miles.

2d. The ridge lands North and West of the sand hill belt, higher than it; land gray sandy loam on clay subsoil, covering 400 square miles.

This formation belongs to the eocene buhr-stone, with here and there outlyers of granite rock; its Northern margin rests on the metamorphic rocks.

VI. *The region of the Metamorphic Rocks is next reached.*—It includes that portion of the State known as the upper country, covers some 11,000 square miles, and has a mean elevation above the sea level of 600 to 800 feet. Its soils are—

1st. The cold gray lands overlying for the most part the clay slates.

2d. The gray sandy soils from the decomposition of granite gneiss.

3d. The red lands.

4th. The trappean soils, known as flat woods meadow or black-jack lands in various sections.

VII. The Piedmont belt is the extreme Northwestern extension of the rocks and soils of the region just mentioned, differing from the former by its more broken and mountainous character, and by its greater elevation, ranging from 900 feet to 3,430 feet at Mount Pinnacle near Pickens Court House, the highest point in the State.

The agricultural products of the upper part of the State are essentially the same as those grown nearer the sea shore, with the exception of rice, which, for want of the means of irrigation, cannot be here produced profitably, and that short staple cotton is substituted for the long—the climate and soil not being adapted to the latter. In most respects, the soil of this region is more fertile than that of the lower division, and consequently yields a more bountiful return for the labor bestowed. Most of the cultivated fruits, moreover, with the exception of the orange, the lemon and the fig, are produced in the greatest perfection in the

upper districts. Indeed, taking the State altogether, possessing, as it does, vast tracts of fertile territory, and blessed with a mild and genial climate, there are few spots on earth where the wants and comforts of man can be more bountifully supplied or his industry receive a more adequate reward.

The olive and the orange tree bring their fruit to full perfection on the South Carolina coast. Once only during a period of sixteen years previous to 1880 were the orange trees injured by frost, when the tops of about one-fourth were killed, while the roots put out fresh shoots; the fruit from single trees in the neighborhood of Beaufort has for a series of years sold for $150 to $250. Even the banana, with a not expensive Winter protection, has been made to ripen its fruits. Fig trees of every variety, with little or no attention, grow everywhere and produce several abundant crops yearly; so that could some process similar to the Alden process for drying fruit be adapted to them they might become an important staple of export. Every variety of garden produce does well, as witness the extensive truck gardens on Charleston Neck, which furnish large supplies of fruits and vegetables of finest quality to distant markets. The wild grapes, which attracted the notice of the first French colonists under Ribault, in 1562, still abound; and perhaps the largest grape vine in the world is one eighteen inches in diameter near Sheldon Church, Beaufort County. Hay made of Bermuda grass, ranking in the market with the best imported hay, has been profitably grown. Five acres at the Atlantic Farm have for a series of years yielded 9,000 pounds per acre yearly; and on the Stono Farm two tons one year, and four and a half another, has been made to the acre. Winter vetches grow wild, and the vine of the cow pea furnishes an abundant forage besides increasing the fertility of the soil. The red rust proof oat, recently introduced, is peculiarly adapted to the mild Winters of this region, yielding readily and with great certainty 30 to 50 bushels per acre. Should an increase of the population call for a larger food supply, the sweet potato would furnish it to an extent practically unlimited. Indigo, rice, hemp, beans, peanuts, castor oil beans, sugar cane, and many other substantial fruits and vegetables, too numerous to mention, have been successfully cultivated as field crops, besides that of the standard crop of cotton, corn and rice.

SOIL.

As soils derive their peculiarities from the geological formations from which they are derived, and from the succession of organic deposits taking place upon the surface, consisting mainly of the decay of diversified vegetable products which spring from their bosom, it must be obvious that in this respect South Carolina must present very palpable differ-

ences in different portions of its limits. In the upper portion of the State comprised within the granitic or primitive region of geologists the soil is consequently formed, for the most part, from the debris or disintegrated elements constituting that formation, many of which abound in materials in a high degree fertilizing, and is, with few exceptions, far more fruitful in most of the productions of the earth than that which characterizes a great extent of the lower division of the State. Although, in many situations, especially upon the higher ridges, forming the boundaries or head lands, between the sources of the principal streams, it is sandy on the surface, resting below upon a bed of clay, it more frequently consists of a rich clay loam, containing much vegetable matter, intermixed with silica, disintegrated feldspar, hornblende, mica, and, in some situations, more or less lime and magnesia. The whole of the upper section of South Carolina is agreeably diversified by hill and dale, the former sometimes rising so precipitately as to be scarcely susceptible of cultivation, and many of them, owing to the steepness of their declivity, having their surface soil entirely removed by successive torrents of rain, present merely a rugged and bared surface made up of the native primitive rocks characteristic of the geological formation.

The soil of the Sea Island consists, for the most part, of a fine, sandy loam. This soil rests on a subsoil of yellow sand or yellow clay of fine texture and deepening in color sometimes to red. These clays give a yellow hue to the otherwise grey surface, which is noticed by Mr. Seabrook as indicating lands peculiarly adapted for the production of the silky fibre of long staple cotton. Besides these soils there are numerous flats or fresh water swamps, known as bays, here and there. A few of these have been reclaimed by drainage. The soil is a black, vegetable mould of great fertility, resting on fine blue sand and marl. To a very limited extent the salt marsh has also been reclaimed, but as yet agriculture has availed itself so little of the vast possibilities in this line that the chief value of the salt marsh attaches to its use in furnishing forage and litter for stock and inexhaustible material for comforts. Low as these lands lie, they are susceptible of easy drainage. The following analysis will indicate more in detail the character of these soils:

	(1)	(2)	(3)
Insoluble matter	89.368	92.480	58.110
Soluble silica	2.062	0.425	0.328
Potash	0.131	0.200	0.190
Soda	0.077		1.476
Lime	0.077	0.892	0 420
Magnesia	0.038	trace	0.317
Br. ox. manganese	0.154	——	——
Peroxide iron	0.598	2.490	1.860
Alumina	3.051		1.131
Phosphoric acid	0.163	0.095	0.062
Sulphuric acid	0.154	0.070	0.422
Water and organic matter	4.789	2.928	44.865
Carbonic acid		0.420	0.840

(1) Is soil from Northeast end of James Island, furnished by Elias Rivers, Esq., for analysis by Dr. Eugene A. Smith, of Tuscaloosa, Ala., and may be taken as a specimen of the less sandy soils of the sea islands. Such lands yield about 300 pounds of long staple lint one year with another.

(2) Is by Prof. C. U. Shepard, of Charleston, of soil from Mr. J. J. Mikell's place on Edisto Island, famous for having long and profitably produced the finest grade of sea island cotton, and may be considered as a representative soil.

(3) Is also by Prof. C. U. Shepard, being an analysis of an air-dry specimen of salt marsh.

What is known as the lower pine belt, which is contiguous and immediately inland from the coast region, comprises three leading varieties of soil:

1st. A sandy loam with a white sandy subsoil. 2d. A sandy loam with a yellow subsoil. 3d. A sandy loam with a clay subsoil; the clay is generally yellow, but sometimes it is red. The surface soil is lighter or darker, in proportion to the varying quantities of vegetable matter it contains, and where the clay subsoil covers it assumes on cultivation a mulatto color. These soils bear a strong resemblance to the sea island soil, having this advantage, however, over them: that they are very generally underlaid by easily accessible beds of marl richer in lime than those of sea islands. In drainage, however, they compare unfavorably with the sea islands; for the scouring effect of the rise and fall of the tide, which keeps the water ways around the islands open, is not only not experienced in this belt, but, on the contrary, the luxuriant water growth that flourishes here has filled up the channels, converting them into swamps, through which scarcely any current passes. This, in connection with the level character of the country, renders the body of these lands wet. But for this, the good mechanical constitution of the soil, being light and

easily tilled and at the same time (except in the case of white sandy subsoil) sufficiently compact to be retentive of manures and moisture, together with the abundance of marl and of peat and muck at hand as amendments to the virgin soil, would have made them most desirable lands for tillage. As it is, not more than 1 acre in 22 is under cultivation, and the prices of lands are from $5 down to 50 cents.

The following analyses by C. U. Shepard, Jr., from Tuomey's Report, give an idea of the constitution of some of the poorer soils of this region, classed as pine barren. 1. Close sandy soil. 2. Dark grey soil. 3. Very light sandy soil. 4. Close yellow sandy soil:

	1.	2.	3.	4.
Silica	92 57	91.64	94.00	93.00
Alumina	1.70	1.70	.94	.81
Peroxide iron and carb. and phosphate lime.	0.71	0.50	0.50	1.20
Water of absorption and organic matter	5.03	6.16	4.56	4.99
	100.00	100.00	100.00	100.00

The 4,500 square miles of overflowed lands in the savanna region presents quite a variety of swamp lands. The most elevated of these are cypress ponds—shallow flats with an impervious clay bottom, thickly grown in small cypress; some of them contain a thick deposit of vegetable matter, and when drained have proved very productive. Next in order come the almost impenetrable bays, thickly set with a growth of bays, gum and tulip trees and a dense undergrowth of vines and bushes. The soil is peat or muck, resting on blue mud and underlaid by marl and sand. Then come the open savannas and the river bottoms—a rich, tough, loamy soil, having at times a depth of 60 feet, derived from the denudation of the upper country, whose "richest possessions are found in well sifted purity in these vast swamps." These are the rice lands of Carolina. Taken all in all, whether we consider the physical character of the soil, the amount of organic matter it contains, the variety of its mineral constituents, or the sub-tropical climate of the locality, with the facilities for irrigation, either for culture or to renew the surface fertility, they are perhaps excelled in productiveness by no lands in the world.

The upper pine belt contains something over 6,000 square miles, about one-sixth of which is swamp and the remainder uplands.

The uplands consist of a fine, light, gray, sandy loam, resting on a subsoil of red or yellow clay. In the East, in Marlboro and Marion, it is usually found at only 3 inches to 4 inches. In the West it is often deeper, and a subsoil of yellow or red sand intervenes between it and the surface soil; even here the depth to clay is seldom as much as two feet.

The following are the analyses of these soils, made by Eugene A. Smith, of Alabama, for the Tenth U. S. Census:

	1.	2.	3.	4.
Insoluble matter	93.695	91.230	96.000	84.754
Soluble Silica	1.483	2.489	0.950	4.435
Potash	0.076	0.092	0.040	0.192
Soda	0.060	0.046	0.027	0.069
Lime	0.114	0.092	0.052	0.068
Magnesia	0.202	0.046	0.062	0.294
Bn. Oxide of Manganese	0.020	0.105	0.023	0.036
Per Oxide of Iron	0.737	0.760	0.564	1.997
Alumina	1.846	2.389	0.456	4.854
Phosphoric Acid	0.036	0.125	0.049	0.022
Sulphuric Acid	0.106	0.160	0.063	0.236
Water and organic matter	1.771	3.091	1.561	3.312
Total	100.146	100.625	99.843	100.269
Hydroscopic moisture @ 75° F.	2.512	2.245	1.441	4.518

RIVERS.

The average annual rainfall is stated at fifty-two inches, and it probably exceeds rather than falls below this figure. This is from four to six inches more than in the same region in Virginia, North Carolina and Georgia. The following statement shows how it compares with the rainfall of the New England and Middle States; the mean of observations made at twenty-six stations on the principal rivers in those States being given:

	Spring.	Summer.	Autumn.	Winter.	Year.
	IN.	IN.	IN.	IN.	IN.
Piedmont region of South Carolina.	12	14	10	16	52
New England and Middle States.	11	12	10	9	43

There are four chief river systems in South Carolina—the Pee Dee, the Santee, the Edisto and the Savannah. The State is traversed throughout nearly its whole length and breadth by innumerable rivers and smaller streams, all of which roll their flood of waters towards the ocean. There is a notable difference between them, referable to their origin and course, and may be divided into three classes:

1st. Those which rise in mountain regions, and, receiving constant acquisitions in their course, traverse nearly the entire extent of the State.

2d. Those deriving their source from the middle hilly region, known as the "sand hills." Many of these are fed at their sources by perennial springs, receive constant accessions in their course, and finally, like the former, empty into the ocean.

3d. Those of far inferior length, but in some instances of even greater magnitude than the preceding, which consist of mere prolongations or arms of the sea, but which are nevertheless fed at their heads by the abundant surface water and drainage of the immense and innumerable swamps and ponds making so large a proportion of the lower division of the State. To these last may be added innumerable inlets, spreading their tortuous course along the entire extent of sea shore and forming the insular boundaries of the infinity of islands by which the coast is diversified. To the first class may be referred the Savannah, the Broad, Tyger, Enoree, Pacolet and Saluda—all rising in the mountain region of North and South Carolina. The Broad and Saluda, by the assemblage of their waters, form the Congaree. The Catawba and Wateree, of similar source with the preceding, by their junction with the Congaree form the Santee; and the Pee Dee, which, after traversing a large extent of the upper region of North Carolina, flows through the Southeastern part of the State and empties into Winyah Bay. All these streams, rising, as they do, in the granite region, run a precipitate course for half their length over their rocky beds of granite, gneiss, &c., which in many places crop out, forming natural bridges or dams across the streams, giving rise to a succession of falls and cascades of surpassing grandeur.

As each river leaves the region of rocks to enter the borders of the low country, it makes a sudden and well marked detour Eastward, except the Savannah, which seems to have had its bed shifted Westward at this line of demarkation. Thus, had the grooves cut through the ancient strata of the crystalline rocks by these streams been prolonged among the sands and clays of the low country, their estuaries would have been quite different from what they are at present. Had the line of the Savannah, as it channeled its way ages ago through the mica, slate and gneiss rock of Oconee, Anderson and Abbeville Counties, not been thrown Westward by the granites of Horse Creek and the high sand and clay hills of Aiken County, it would have continued its course to Broad River, at present that magnificent arm of the sea forming the head of Port Royal harbor. Here it would have been joined, too, by the waters of the North and South Edisto, had they not been deflected Eastward by the granite rocks and sand hills of Aiken and Orangeburg.

The tortuous courses into which the streams have been forced by the causes already stated, after entering the low country, while it has increased the navigable waters of the State, giving, "apart from creeks

and inlets of the sea, an inland navigation of 2,400 miles," has seriously impeded the drainage of the low country, creating there some 5,500 square miles of swamp lands, which, though naturally, when reclaimed, of almost inexhaustible fertility, remain to this day for the most part waste, the prolific source of the miasms so deleterious to the health of this region. Numerous suggestions to remedy this evil have been made, but as yet nothing has been attempted on a scale commensúrate with the importance of the undertaking.

It will be readily conceived that water derived from such a diversity of sources and flowing through such a vast extent of country, liable at every point to impregnation with varied elements, must be highly diversified in its properties. At ordinary times the waters of these rivers may be said to possess an average degree of purity, but after heavy rains, when the streams are swollen, so much of the surface soil from the adjacent hills is washed into them that at such times they are rendered highly turbid, and, when suffered to stand, deposit a very heavy sediment of clay, sand, disintegrated elements of the primitive rocks, sometimes traces of lime and much vegetable matter. It is in consequence of the abundance of these deposits that the low grounds along the streams, subject to inundation by freshets, are rendered so highly fertile.

Under the second class of rivers may be ranged the Edisto, or Pon Pon, the Saltkehatchie and Combahee, Black River and others of smaller magnitude. All of these, deriving their main origin from the elevated sand hills of the middle country, possess characters in palpable contrast with the preceding. Many of their sources being fed by pure perennial springs, and nearly the whole of the remainder being derived by percolation through the pure white sand of the region, over which they flow for a great distance, with but little chance of contamination, their waters, especially near their respective sources, present great purity, and only become divested of these properties in proportion as they become contaminated by admixture with heterogeneous elements derived from the swamps in their progress to the ocean. While yet confined to the region of their origin, the water of these streams is so limpid that the most minute objects are distinctly visible, even at the depth of several feet. It is pleasant, light and wholesome, containing but little foreign admixture, with the exception, perhaps, of a small quantity of vegetable coloring matter in solution. But, as these streams flow mostly through a level country, their course is somewhat sluggish, and after they leave the sand hills they are generally skirted by extensive swamps, over which they flow during freshets, and upon which stagnant water, in form of ponds, lakes or lagoons, is almost constantly found. These swamps are sometimes more than a mile in breadth, and, when cleared of their natural growth for agricultural purposes and exposed to the hot rays of the

sun, they prove a fruitful source of malarious diseases. The same remark will apply with equal force to all the other classes of rivers which flow through the State.

The streams belonging to the third class are even more numerous. Amongst the most important of them are the Cooper, Ashley, Wando, Waccamaw, Sampit, Stono, Ashepoo, Pocataligo, Coosaw, Broad, New and May Rivers. To these must be added the numerous inlets referred to above, together with a number of bays, &c., skirting and indenting the Atlantic coast. They consist essentially, as remarked above, of arms or prolongations of the sea, although fed at their heads by fresh water, derived from innumerable swamps and the drainage from the adjacent country. They are generally large in proportion to their length, and many of them are influenced by the tide almost to their source. But the extent to which the salt water is carried up by the tide is variable, according as the season is dry or rainy. During freshets they are often fresh almost to their mouth; and as they are always so for some distance from their source, especially where there is a good head of fresh water to resist the invasions of the tide from the ocean, the widely extended swamps which skirt their whole course are, throughout the whole fresh water limits, admirably adapted to rice culture. Indeed, the same remark will apply to the corresponding portions of all the rivers of the State, which, for a certain distance beyond the limits of salt water and within the range of the tide, present a vast extent of inexhaustible swamp land, which, on account of the facility of irrigation, is above all others adapted to the profitable culture of this important staple product of the State. These swamps or marshes, within the limits of salt water, (and the same is true of the margin of the ocean generally,) consist of a profound bed of blue mud, containing a large amount of vegetable matter and generally covered by a luxuriant growth of marsh sedge (Spartina glabra). Immense tracts of this kind exist throughout this entire region of country, which in many places present vast level prairie-like plains as far as the eye can see, nearly the whole of which are overflowed by high tides. But few attempts have been made to reclaim these marshes and bring them into a state of cultivation, because of the difficulty and expense of making adequate embankments to resist the pressure of water from without and the impossibility of securing proper drainage, on account of their very slight elevation above the level of the adjacent rivers.

In addition to this vast extent of tide swamp, in the vicinity of the outlets of the principal rivers there is everywhere, within a distance of twenty or thirty miles of the ocean, a great amount of inland swamp of great fertility bordering upon the fresh water streams, which for a century at least have been submitted to rice culture, irrigation here being

effected through the instrumentality of extensive reserves. But, owing in part to the difficulty of cultivation, and in part also to the liability to freshets on the one hand and the precarious supply of water on the other, many of these lands have been abandoned and suffered to relapse almost into a state of nature. In many cases, however, this very abandonment, owing to the extensive series of embankments by which the natural course of the streams has been obstructed, has placed them in a condition far more detrimental to human health than they were when clad and protected by the natural forest growth.

Still farther in the interior, in many parts of the State, extensive tracts of swamp land bordering upon the principal rivers have been embanked and cleared and are now under profitable culture in cotton, corn and other articles calculated to supply the wants of man or satisfy his cupidity.

In this connection, it may be proper to advert to another circumstance relating to these water courses which possesses no slight interest as connected with the subject of the public hygiene of the State. Throughout the whole of the interior, with the view of rendering the extensive water power subservient to various industrial pursuits, but chiefly for the grinding of grain and the sawing of lumber, most of the larger streams have been dammed up to form mill ponds or extensive reserves of water, by which large tracts of country are kept perpetually overflowed by stagnant water, in the midst of which the native forest growth dies and perishes; and when the slimy alluvium beds of these become laid bare, as they always do under the evaporating influence of the Summer sun, malaria is generated in great abundance and spreads its direful influence over the whole of the adjacent regions. These mill ponds have, indeed, been regarded, with much truth, as the most prolific sources of disease and death throughout nearly the entire region of the State. Another circumstance intimately connected with this is the influence of the heats of Summer in drying up most of the streams, many of which, even those of the largest size, are, under the influence of this cause, so reduced in size that their muddy beds are bared and exposed; while often, in periods of drought, the smaller ones are so far dried up as to cease to flow and are converted into a number of stagnant pools, confined to the deepest points, reeking with offensive exhalations engendered by vegetable and animal putrefaction.

The leading characteristics of the sea coast, with its numerous islands, inlets and estuaries, have been already alluded to in our general remarks on the physical features of the State. In a geological point of view, however, the margin of the ocean presents some notable peculiarities which deserve a passing remark. In general terms, it may be remarked that so far as the superficies is concerned the whole of this region con-

sists, for the most part, of vast areas of light fine sand, marsh mud, and occasionally of clay to a limited extent, super-imposed upon the post pliocene beds; the latter, in many situations, being exposed, or very near the surface. This is the most general character, not only of the numerous islands, but likewise of the principal part of the main land bordering immediately upon the ocean. In consequence of these characters, these formations (exposed as they are to an influence exercised upon them by the numerous rivers emptying into the ocean on the one hand, and to, perhaps, a still greater modifying agency from the winds and tides on the other,) are more liable than any other geological formations in the State to great and sudden changes of form and general arrangement. These facts have been carefully noted by Prof. Tuomey, as well as the leading causes giving rise to these changes, and your reporter feels that he cannot do better than to quote his remarks upon this subject.

"Every one is aware," says he, "that a vast amount of matter is carried down annually by the rivers into the ocean and deposited in the form of beds of mud or sand. The size of the particles forming these beds will depend upon the velocity of the streams transporting them. The coarser materials will be deposited first, and by the time the rivers reach the ocean little besides the finest sedimentary matter will remain suspended in the water. This is one of the causes of the great difference that exists in the alluvial soils, seen on the banks of the rivers, as we approach their mouths.

"The fine matter held in suspension by the river water as it enters the ocean would be dissipated by the currents along the coast, if a barrier were not raised by the ocean itself, which breaks the force of these currents and produces still water between the beach and the coast.

"The gulf stream produces an eddy current, which washes the coast Southwardly, and the sand beds so common on the coast are formed in the diagonal or resultant of these two currents. Those formed at the mouths of rivers must also, it seems to me, be influenced by the force and direction of their waters. The bars, however, are generally formed directly by the ocean, and not by the water of the rivers."

In some situations vast sand bars, thus formed at the mouth of rivers, extend out for some distance into the adjacent ocean, and in process of time change the entire physical aspect of such portions of the coast. At the mouth of the South Santee, according to Mr. Tuomey, a narrow sand bank extends into the Atlantic, from the North bank of the river, which has been thrown up by the waves. This bank has advanced gradually, for the last thirty years, at the rate of about one mile in ten years. A similar remark is made by Dr. Hasell, in his account of Georgetown District. "The alluvial land to the West of Georgetown," he observes, "has,

in the course of its formation, increased at the rate of three miles in thirty years, some of which has since been converted into rice fields, while the ocean slowly, but perceptibly, encroaches upon the crescentic coast, to the North of the bar." Corresponding changes, influenced by the same causes, are perpetually taking place upon the whole line of coast, and within the memory of man vast and fertile fields have thus been acquired from the domain of the ocean, while other situations of equal extent, once clad with productive crops of rice or cotton, have been swallowed up and swept away by the encroaching wave.

The operation of these causes through a succession of ages has given rise to the numerous islands skirting the coast of South Carolina. Some of them are, in a high degree, fertile, affording the most valuable cotton lands in the State, while others are dry and sterile, consisting for the most part of dry, drifting sands, often thrown up into mounds or hillocks of great height, bearing no unlike similitude in their undulations to the waves of the ocean. The usual process of formation of these islands, according to Professor Tuomey, is as follows: "The portion of the flat next to the channel is composed of coarser materials; between this and the land a sort of lagoon channel is left, but which is gradually filling up with lighter materials, such as leaves and other vegetable matter, drifted back by the eddy. The depth of these mud flats is only limited by that of the bottom of the river, and hence it is frequently very considerable. When they attain the level of high water they are soon covered by marsh reed (*spartana glabra*). Their progress in rising is now much slower, because they no longer receive accessions from the rivers or tides, excepting on extraordinary occasions. The annual crop of reeds, however, produces a gradual accumulation, and the moment any portion is elevated completely above tide, it is taken possession of by tufts of rushes.

"It is observable that on the borders of the channels by which these islands are separated they are higher than in other parts. This is often indicated by the growth of shrubs, such as the myrtle and baccharis, upon the elevated spots. A few inches of sand, where they are above tide, would fit them for the growth of pines and other trees and give them all the appearance and character of permanent land."—Page 191. Swamp trees, as the cypress, &c., may even grow in such situations, although the ground may not be elevated above tide, provided salt water be excluded. Hence, stumps of trees are often found along the coast below the tide level, leading to the supposition of a gradual subsidence of the land and a corresponding encroachment of the ocean.

The whole of the upper region of the State beyond the limits of the tertiary formation, and extending from thence to the territorial boundary, has been already remarked, consists of the primitive formation and

possesses all the essential characters of that geological era, being composed essentially of granite and gneiss rock, super-imposed upon which are the ordinary metamorphic stratified series peculiar to such formations, as hornblende rock, mica slate, clay slate, some isolated beds of limestone, quartz rocks, &c. The relative position of these and the order of their distribution are not important for our purpose and need not claim a particular description. It may be proper to remark, however, that the rocks of this region are at certain points traversed by trap dykes of considerable extent, which, as they impress important characters upon the features of some of the regions occupied by them, and which will be more fully noticed further on, deserve to be mentioned in this place. These trap dykes, according to Professor Tuomey, extend from Virginia, through North and South Carolina and Georgia, into Alabama, as far as the Coosa River, in the latter State. He observes that "in those Districts where the trap rocks abound, they have impressed themselves so distinctly upon the soil and physical features of the country as to suggest particular, but by no means descriptive, names; such as the 'flat woods of Abbeville,' the 'meadow woods of Union,' and the 'black jack lands of Chester.'" These localities have been particularly adverted to by Dr. Douglass in his report for Chester, by Dr. Bratton in his account of York, and Dr. Davis in his observations on Abbeville County.

The primitive region of South Carolina comprises the following Counties, viz.: Part of Edgefield, Lexington and Richland, and the whole of Lancaster, Fairfield, Chester, York, Newberry, Laurens, Abbeville, Union, Spartanburg, Greenville, Anderson and Pickens. While the whole of this vast region possesses certain features in common, it is characterized by numerous diversities, dependent upon the various disturbing influences to which it has been subjected since its primeval period.

III. Water of the State: Of rivers, creeks and smaller streams; of springs, wells and cisterns; of artesian wells; mineral waters.

Intimately connected with the geological considerations relating to the State is the examination of the water so abundantly distributed over its surface. This is particularly important in a medico-topographical point of view, as water is one of those agents which, from the extent that it contributes to the natural wants and general comforts of man, is calculated to exercise a most extensive influence upon human health.

The water of rivers and other natural streams is sensibly different in its properties, according to their proximity to the ocean, the sources from whence they are derived and the character of the country through which they flow. It is also notably modified by the rapidity or sluggishness of the current, so that, as a general rule, the water of rivers, which is in constant motion, is less liable to accidental contamination, and is

consequently more pure than that which remains in motionless stagnation in ponds and small lakes. Into all the rivers emptying directly into the ocean the tide generally flows up stream to a distance of twenty or thirty miles, according to the rapidity of the downward current. For some distance from the sea the water of such rivers is salt; beyond that brackish and unfit for drinking purposes; but still higher up it is sufficiently pure for the ordinary purposes of life, but generally holds in solution or suspension a variety of heterogenous elements, infinitely varied, according to the source of such streams or the character of the region traversed by them in their course to the ocean. The materials are partly saline, or earthy, derived from the soil, and partly of organic origin, consisting chiefly of vegetable matter, either in solution or in a minute state of division. In rainy seasons, when the streams flowing through the hilly clay region of the upper part of the State become swollen, the water is rendered in a high degree turbid by the washings of the soil from the adjacent hillsides, and is consequently at such times not potable unless filtered or allowed to stand a sufficient time to allow it to deposit this sediment. But with these exceptions the waters of most of the rivers may be considered as sufficiently pure and wholesome to subserve all the purposes of life.

Most parts of the State abound with natural springs, variable as to the quantity and quality of the water they afford; and where these are absent, this important element is obtained, for domestic purposes, by sinking wells, by which an ample supply is generally obtained, at a depth of from ten to three hundred feet, according to the elevation of the country. The supply from these sources is quite as variable as to quality as that from natural springs, and owes its modifications to the same causes. In the neighborhood of the coast, and, indeed, throughout the whole tide water region, although there is much difference in the qualities of the well and spring water, according to situation, while much of it is potable and wholesome, by far the greater part is brackish and scarcely drinkable. In the city of Charleston, generally, water is found at a depth of ten or twelve feet, which is about the level of low water mark, and as the only source of such supply is the surface water of rains, percolating through the porous soil, it of course becomes more or less contaminated by a corresponding percolation from the ocean, taking place at high tide, and, consequently, contains more or less chloride of sodium and other elements which render it unpleasant to the taste and unfit for drinking. The springs and wells throughout the entire tertiary region beyond the limits of the tides vary much in the quality of the water they afford. In many situations, where the extensive marl beds belonging to this formation come near the surface, or crop out, the water is more or less impregnated with carbonate of lime, sometimes so much so as to be un-

pleasant to the taste and to possess more or less sensibly what is called "hardness." In many regions, however, an abundant supply of pure and wholesome water is readily obtained, especially where, between the clay and other beds of the geological formation, there are interposed water-bearing strata of sand and gravel of considerable extent, through which the surface water filters for some distance from the more elevated situations and thus becomes purified.

In this connection it may be proper to advert to the ponds and small lakes so abundantly disseminated, especially over the lower half of the State. In most of these the water accumulates after heavy rains, where it remains for some time stagnant, and, being mixed with a great quantity of decaying vegetable and animal matter, it is often highly offensive and detrimental to health. In the buhr-stone region, however, and this is especially true of certain portions of Barnwell County, the case is somewhat different. Here extensive sinks, filled with water, are found, which present some striking peculiarities. Some of them are of vast area; most of them are nearly circular; and while some are dry, or nearly so, during periods of protracted drought, others are nearly at all times filled with water. It is, however, no uncommon occurrence to find some of these ponds, which had been nearly filled with water for a number of years, suddenly becoming dry without any obvious cause and remaining permanently in that condition. The converse is also sometimes true. This, Professor Tuomey suggests, is owing to subterranean vents, by which the water of these ponds is drained off upon the corresponding slopes of the hills, from which it boils up with considerable force through the sand, forming what are generally called "boiling springs." When these vents are sufficiently free to drain off the water faster than it can accumulate in the sinks, from the two-fold source of springs and showers, the sinks will of course remain dry, and, *vice versa*, if the accumulation should preponderate over the escape by drainage and evaporation, then the sinks will be permanently filled. The water furnished by these boiling springs is generally pure and wholesome, though in some situations, where the springs form very near the source, the reverse is true, owing to the water in the pond having become stagnant, and not having percolated for a sufficient distance through the sand to have become divested of the deleterious materials engendered by putrefaction.

Throughout the whole of the sand hill region and the granitic formation composing the upper division of the State abundant springs of pure crystal water gush from the subterranean strata, often from the crevices of rocks, which, in many of them, even at midsummer, is of an icy coldness. Water equally pure is readily obtained in these regions by sinking wells, especially when they are carried to a sufficient depth to tap the water-bearing strata some distance below the surface. To this

rule, however, there are some exceptions. In the "flat woods" of Abbeville, the "meadow woods" of Union and the "black jack lands" of Chester most of the springs and wells are charged with lime and iron, and some of them also with magnesia and sulphur. This renders the water hard and unpalatable.

The water of cisterns, which in the city of Charleston is that most extensively used, were it not for the accidental contamination derived from the roofs of houses, from which a mass of heterogeneous materials is often allowed to be washed down into the reservoirs, would be the most pure and wholesome. There is, besides, another difficulty in relation to these sources of supply. In periods of protracted drought the cisterns are apt to become exhausted, and wherever the water level gets low the accidental accumulation gradually taking place in the manner above stated often undergoes a kind of putrefactive fermentation, rendering the water offensive and unfit for use.

To supply a desideratum long felt in Charleston, and the same holds good throughout nearly the whole tide water region of the State, the City Council some time since determined to make an effort to obtain an abundant supply of pure and wholesome water, by boring artesian wells. It has been ascertained that at a distance of about sixty feet from the surface, super-imposed upon the marl beds which underlie the city and adjacent country, there is a water-bearing stratum of sand capable of furnishing a copious supply of tolerably pure water. Many wells have, accordingly, been bored to tap this stratum, as well in the city as in the adjacent country, with variable results. While the water of some of these wells is sufficiently pure and wholesome for ordinary purposes, being but slightly charged with carbonate of lime from the marl beds, and with saline materials from the super-imposed soil, that of others is so strongly impregnated with these minerals as well as others, especially sulphur and iron, probably from the adjacent salt marshes, which contain both, as to be altogether unfit for use.

In view of the several difficulties mentioned above, the Legislature, at a recent session, incorporated a water company, having for its object the introduction into the city of an adequate supply of pure and wholesome water from some appropriate source. The Edisto has been suggested as the most eligible. This stream, being fed at its source by numerous pure sand hill springs, is admirably adapted to furnish what has been so much and so long desired, and should the company carry out the objects for which it was formed, there is every reason to believe that while the comfort of the people would be improved, and their property rendered more secure, health would be greatly promoted.

MINERAL SPRINGS.

South Carolina, although not particularly noted for mineral springs

possessing important medicinal properties, nevertheless contains many of sufficient reputation to deserve a passing notice. In the absence of any allusion to this subject in the several communications made to your reporter, and personal information on his own part, he must content himself with the quotation of the following brief remarks of Prof. Tuomey on the mineral waters of the State. Many other things, doubtless, exist, but they are not generally known.

"The most noted of these are Glenn's Springs, in Spartanburg County. The water of these springs is strongly charged with the salts of lime. Their location is a pleasant and salubrious one, and the springs are much resorted to by persons from the lower part of the State. Not far from this is a chalybeate spring known as West's Springs.

"Chick's Springs, a few miles above the village of Greenville, are pleasantly situated in sight of the mountains and within a pleasant ride of the village. The water resembles that of Glenn's Springs, but is not so strongly impregnated.

"There are in Abbeville County, in the "flat woods," and near Parson's Mountain—Barmore's Turnout on Columbia and Greenville Railroad—saline and chalybeate springs, but they are not places of resort. There is another spring on the Eastern side of the County, at Pinson's Ford, which is also chalybeate and saline and deserves a trial. In Laurens, there are three or four highly chalybeate and sulphur springs. At Cokesbury, in Abbeville County, there is a very fine mineral spring, composed of sulphur, magnesia, potash and highly charged with carbonic acid.

CLIMATE OF UPPER SOUTH CAROLINA

According to the physical charts of the Ninth United States Census and the rain charts of the Smithsonian Institute, (second edition, 1877,) this region has a mean annual temperature corresponding with that of Kansas or New Jersey. The more mountainous portions have, however, a mean annual temperature that corresponds with that of Montana or the lower region of the great lakes. The mean of the hottest week of 1872, taken at 4 h. 35 m. P. M., was 90° F. The mean of the coldest week of 1872–73, taken at 7 h. 35 m. A. M., was 25° F.

The prevailing winds are from the Southeast and the mean velocity of the movement of the atmosphere is much below the average for the United States at large. In the frequency with which the region is traversed by storm areas of, say, fifty miles in diameter, it ranks with the lowest in the United States. With the more extensive region South of it, it is peculiarly exempt from destructive storms.

Blessed with an unusual number of clear days and a large amount of sunshine, the fig tree thrives here without protection at an elevation of

1,500 feet above the sea. "The climate is less subject to sudden changes than in the plain below. Vegetation is late, but when once fairly begun is seldom destroyed by subsequent frosts. Neither are there any marks of trees being struck by lightning or blown up by storms."—David Ramsey, History of South Carolina.

The annual fall of water is over sixty inches, and this is, therefore, among the region of heaviest precipitation in the United States. For Spring it is over eighteen inches and for Autumn it is twelve inches, which are also the maximum in the United States. In Winter it is sixteen inches, which is less than the maximum, and in Summer it is fourteen inches, which places it third in a series of five—or just medium. Dewless nights rarely occur, and the luxuriant vegetation of this region does not, in consequence, suffer from the rigor of extreme droughts so frequent elsewhere.

The following observations on the temperature of springs in this region were made by Lieber:

Locality.	Time of Observation.	Temperature.	
		Atmosphere.	Water.
Poinsett Spring in Greenville, near North Carolina line....	7th June, 7½ A. M.	72.05°	56.86°
Spring on Jones's Gap Road, near turnpike gate.....	16th June, 2 P. M.	75.74°	57.56°
Cold Spring on Cæsar's Head..	29th June, 9½ A. M.	80.60°	55.40°
House Spring, Cæsar's Head..	29th June, 10½ A. M.	78.80°	57.56°

CLIMATE OF SEA COAST.

The sea islands enjoy in a high degree the equable climate peculiar to islands generally. The extremes of temperature are, as might be expected, greatest in the direction of low temperature, and the cold, which is sometimes injurious to the orange and olive trees, destroys also the germs of many insects, as of the cotton caterpillar, inimical to vegetation; and, of more importance still, it destroys the germs of disease, as of the yellow fever and of numerous skin diseases that flourish in similar regions elsewhere, preventing them from becoming indigenous and keeping them exotics, forever requiring yearly renewal from without.

Notwithstanding the amount of rainfall and proximity to the sea, the climate is not excessively moist, as might be inferred. This is owing to the large number of clear days, averaging about 235 during the year, against an average of 86 days in which rain fell and 44 cloudy and rainless days. Fogs are of very infrequent occurrence, and although the periods of the greatest rainfall is in the Summer and Autumn, the dew point does not indicate that the air is more saturated with moisture at that time than during the Winter and Autumn; and if the farmer were questioned, he would say that, instead of being excessive, the moisture was generally less during those periods than he could desire. Vegetation is usually checked by cold for not more than six weeks in the year, from the middle of December to the first of February. Nature, that does not allow the inhabitants of higher latitudes to become purely agricultural in their pursuits, forcing them, during the snows and ice of Winter, to seek occupation in other arts and industries, here bares her bosom the year round to furnish food and work for man, and seed time and harvest occur in every month.

CLIMATE OF LOWER PINE BELT.

In the absence of weather records it is difficult to express the difference between the climate of lower pine belt and that of sea coast (already described) more definitely than to say that it is such difference as is to be found between the conditions favorable for the growth of the cabbage palmetto, which barely touches the Southern border of the belt, and of the live oak, that just extends to its Northern or inland margin. A low, flat country, intersected by numerous swamps, might naturally be thought very sickly. This region, however, has one advantage: almost everywhere there are found small tracts, islands as it were, of dry, sandy soil, heavily timbered with the long leaf pine, which is a barrier to the invasion of malaria. These retreats furnish places of residence as healthy as are to be found anywhere; such a place is the village of Summerville, on the South Carolina Railroad, a health resort that divides with Sullivan's Island the patronage of the citizens of Charleston during the warm weather. McPhersonville, in Hampton, and Pineville, in Georgetown, are villages of the same character, and there is scarcely a neighborhood that has not some such healthy spot as a place of residence during Summer. The dread of malaria is much less than it was when the opinion that the colored race was exempt from such influences was adduced as an argument to show the providential nature of their location here to develop these fertile lands. The reverses of fortune sustained as a result of the war have forced many white families to reside the Summer long where it was once thought fatal to do so, and the

experiment has been successful, thus exploding the idea that white people could not enjoy health here during the Summer months. Replies from twenty-three townships state, without exception, that the inhabitants enjoy good health, and that a considerable proportion of the field work is performed by whites—a great change since the war. The census returns give fifteen deaths per 1,000 population in the portions of Charleston and Colleton Counties lying in this region for the year 1880.

FORESTRY.

The forests of South Carolina embrace almost every species of deciduous and evergreen trees, that are either desirable for beauty or useful for industrial purposes; besides which, both the high and low lands are in many places thickly covered with a luxuriant undergrowth of smaller trees and shrubs, together with an abundant flora of minor size, in which nearly all the genera of the United States are represented. So abundant and luxuriant is this growth, that in many situations impenetrable swamps of vast extent exist so thickly covered with these natural productions of the soil as almost entirely to exclude the rays of the sun.

Commencing with the sea islands and the tide water region bordering the coast, we find a growth almost peculiar. Along the sand drifts of the beach chamerops palmetto is everywhere seen, presenting its palm-like fronds to the breeze and giving to the landscape a peculiar appearance. Further inland, the most common growth is the loblolly pine, (Pinus Tedea); the live oak and water oak, (Quercus Virens and Quercus Aquatica); the willow oak, (Quercus Phillos); the black gum, sweet gum, plane tree, magnolia (Grandiflora and Glauca), laurel, Gordonia Lasianthus, Celtis Occidentalis, dogwood, poplar, (Liriodendron Tulipifera); Juniperus Virginiana; Ilex Opaca and Ilex Cassina; the Ulmus Americana and Ulmus Alata; the Populos Augulata; the Salix Nigra; the Cupressus Disticha; the Acer Rubrum; the Diospyrus Virginiana; the Laurus Sassafras; the Fraximus Acuminata, &c., (Carya Tomentosa and Porcina); Fagus Sylvatica; Castania Pumila and C. Vesca; Carpinus Americana; Zanthoxylum Clava Hercules; Cercis Canadensis, Prunus Caroliniana, &c., &c. Another striking peculiarity of this region, the atmosphere of which is characterized by a high degree of humidity, is, that nearly all the forest trees are extensively festooned by a luxuriant growth of long moss, a parasitic plant confined to damp situations, (Tellandsia Usoeidos), which impresses a character upon the landscape only to be found in similar situations near the sea shore.

The principal agricultural productions of this part of the State are: long staple or sea island cotton, rice, Indian corn, cow peas, rye, oats, barley, and the ordinary fruits and culinary vegetables and roots grown

in other parts of the State. On some of the sea islands, and, indeed, upon many parts of the coast, the sugar cane, the sweet and sour orange and the lemon, as well as the olive, bear the Winters well, and often mature their fruit.

Beyond the limits of the region in question the palmetto and the live oak disappear, and the Pinus Teda is supplanted by the straight and lofty towering Pinus Palustris, or long-leaved pine, which, throughout the whole of the low country, except in the immediate vicinity of the ocean and the margin of streams, as well as in the entire middle country, forms continuous forests of immense extent, interspersed with the Quercus Rober, Quercus Catesbeii, Quercus Nigra, and most of the forest trees and other productions of the soil previously mentioned. The Pinus Palustris and the Quercus Catesbeii constitute the preponderating growth throughout the whole of the sand hill region of the State, and the upper limit of the former is marked by a line extending East from a point on the Savannah River a little above Augusta through the Counties of Edgefield, Lexington, Newberry, Richland, Fairfield and Lancaster to the North Carolina boundary.

Beyond this region much of the native forest growth presents an entirely different aspect. The long-leaved pine disappears; the oaks, hickories, dogwood, &c., become more numerous and more gigantic. The Pinus Variabilis here takes the place of the Pinus Palustris, and, in fertile soils, an extensive growth of the Juglans Nigra and Cinerea is often found. In the upper Districts of the State the high, dry ridges abound with the chestnut (Castanea Vesca). In the rich bottom lands, moreover, the birch abounds and attains a much larger size than in the low country.

Although the general face of the country has been notably changed by extensive clearings for agricultural purposes, there are still extensive regions covered with their native gigantic forest growth, in many places so thick that the rays of the sun seldom find their way through its umbrageous foliage; and the lofty pine, with the gigantic and sturdy oak, stand, as it were, lords of the forest, but little disturbed from their primeval condition by the desolating hand of man. Wherever the soil is fertile, however, and suited to the purposes of agriculture, the case is far different. Here the proprietors of the soil, impelled by the wants of their nature, but far more frequently by the thirst for gain, have prostrated everything before the relentless axe, and, laying bare vast extents of territory, have substituted for the natural growth, with which it had been clad for centuries, luxuriant fields of cotton, corn and rice. Under the influence of tillage, hillsides have been washed into gullies and deep ravines; swamps and low grounds have been filled up; streams have been choked and obstructed; and, in many situations,

while the whole physical aspect of the country has been changed, the soil has been impoverished and divested of all its original elements of fertility.

The rapid increase of our population, the want of thrift of a large number of the colored people, the spread of various industries, the building of railroads, threaten, at no distant day, to destroy the best portion of our forests. The consequence of such destruction will be seriously felt, not only in our material wealth, but in an increased amount of sickness, as well as in the climatic changes which are sure to follow. Such an event will reflect upon our refinement, civilization and cultivation, from the fact that nearly all civilized nations have in some way manifested an admiration and respect towards the majestic and venerable in plant life; this, no doubt, is partly due to the blessings conferred in the support of life and in the aid derived by our industrial resources from this source.

Analysis of the reports of meteorological observations throughout the world will warrant the following conclusion, viz., that the clearing of forests produces:

"1st. A less amount of watery precipitation per annum.

"2d. An increase in the amount of evaporation.

"3d. Changes of the earth's surface, which, instead of returning to water that falls and allowing it to penetrate the soil, cause it to flow off rapidly, thus causing high water for short periods, followed by long droughts.

"4th. Changes of the climate by an alteration of moisture and temperature of the atmosphere."

Dr. Schomburgh, the Director of the Botanical Gardens of Adelaide, Australia, has written a recent pamphlet on the influence of trees upon climate. Contrary to the opinions now beginning to be generally accepted by scientific men, the object of the paper is to prove that the destruction of forests usually has the effect of reducing the rainfall, while, on the contrary, the planting of trees broadcast over a country is one of the best methods which can be adopted for ameliorating its climate and increasing the annual fall of rain. Ploughed land attracts moisture to a much greater degree than the unbroken soil. In considering the effect which the removal of forests has had in altering the climate in South Australia, the only direct test that could be taken from the records issued by the Government Astronomer is the experience of the neighborhood of Adelaide. If the time is divided which has elapsed since 1839, the year in which observations were commenced, into two periods, there is found for the first an average rainfall of 22.8 inches, and for the second one of 21.7 inches. It will thus be seen that, on the whole, the rainfall at Adelaide is diminishing, though very slightly, and

perhaps the diminution in the amount of timber may have something to do with the change. Dr. Schomburgh, in searching for illustrations of the effect of trees on climate, goes further afield and brings forward some instances in which he claims that loss of forests means loss of rainfall, and *vice versa*. He recalls how the Russians, by burning down some of the Trans-Caucasian forests at the time of their struggle with the Circassians, converted the country from a fertile land into a desert, simply through the cutting off of the supply of rain. Similar instances of rain having deserted a country denuded of forests have occurred in the Mauritius, in Jamaica, the Azores, and it may also be added to a still more remarkable extent in several of the smaller West India Islands. No sooner had the forests of these places been destroyed than the springs and rivulets began to cease to flow, the rainfall became irregular, and even the deposition of dew was almost entirely checked. On the other hand, it is accepted that Mehemet Ali increased the fertility of Egypt enormously by planting trees. He alone planted some 20,000,000 on the Delta, his successors followed up the work, and the rainfall rose from 6 inches to 40 inches. Planting has also, says Dr. Schomburgh, produced remarkable effects in France and Algiers. Extensive regions have been planted with gums and other trees, which, for the most part, grew to about thirty feet or forty feet in height, and it is noticed that the quantities of rain and dew which now fall on the adjacent land are double what they formerly were.

HEALTH, MALARIA AND DRAINAGE.

By the United States Census for 1870 it appears that the minimum number of deaths in South Carolina occur during the month of October. After that month the number steadily increases during Winter and Spring until the month of May, when the maximum number of deaths take place. From this date the mortality diminishes until the minimum in October is reached. The death rate among the colored population is much greater than among the white, and especially in the cities, towns and villages. There are certain diseases which seem to affect the negro with especial violence, viz., consumption, cholera and smallpox. The lesson of mortality statistics so far given is that the negro is not yet prepared to cope with the white man in the more active struggle for existence in cities and towns. There are, on the other hand, some physical and mental characteristics which help them in the struggle for existence. They are somewhat less susceptible to malaria and yellow fever. Another advantage is a more obtuse nervous organization, whereby he is rarely a victim of nervous exhaustion or mental depression. The chief endemic diseases of South Carolina are of malarial origin.

The development of this poison is favored by marshes, more especially when containing mixed salt and fresh water and resting on a substratum of limestone, clay or mud; by swampy, undrained and delta lands; extensive excavations; newly turned soils; rains after long continued drought, and consequent low-water level; careless culture of soil; neglect of cultivation where vegetation is luxuriant and is permitted to decay on the surface; and in fact by the requisite combination wherever present of the essential elements—high temperature, moisture and decomposing vegetable matter. Nor can it be doubted that it may be diffused in the atmosphere and transported by winds and water courses to non-malarious localities.

The natural damp and swampy soils saturated with the *debris* and filth of freshets is a constant source of disease. Such conditions will produce consumption, diphtheria, rheumatism, as well as malarial fevers, (mixed and pure,) diarrhœa, dysentery and liver disease. An investigation into the causes of death will be in the following order: Malaria, consumption, pneumonia, bowel diseases, diphtheria, &c.

The circumstances which hinder or prevent the generation of miasmata are high latitudes, high elevations, drainage, sunlight, sandy or porous soil and cold; of these cold is the most powerful. The first fall of the temperature below the freezing point in any malarious region arrests the process of development, and it does not recommence until the temperature again ranges continuously during day and night above 58° Fahrenheit.

In the way of drainage, nature has done much for us, especially in upper South Carolina, as an inspection of the topographical features will show, but science and art can do much more in perfecting a system of drainage. Such a system will prove a great health and agricultural economy, whereby the farmer not only secures health, but his land is made to yield a larger increase and make him independent of seasons, whether wet or dry.

There is an idea prevalent that Lower South Carolina is more unhealthy than the upper portion. To a great extent this is true, and due to causes which have been enumerated; but this idea has been greatly modified by occurrences of recent date. While the sand ridges between the rivers have always been esteemed healthy; while the well kept vital statistics of the city of Charleston showed that its health record will compare most favorably with that of other cities; and while numerous localities along the coast, as Mt. Pleasant, Sullivan's Island, and Beaufort, and many other places, were much frequented as health resorts during the Summer months, even by people from the up country, it was confidently predicted at the commencement of the late war that no picket line along the coast between the armies would be maintained during the Summer

and Autumn months. To the surprise of nearly every one, however, such did not prove to be the case. Climatic influences interfered in no way with the vigorous prosecution of hostilities. And it was demonstrated that large bodies of white men, under proper hygienic regulations, with the use of quinine as a preventive, might be safely counted on to endure unusual exposure and toil on these shores during the heat of Summer. Since the war numerous white families, who formerly removed to the North or to the up country during Summer, have remained upon their farms the year round in the enjoyment of their usual health. By the census enumeration of June, 1880, the death rate among the rural population of the entire sea island district was fourteen per one thousand for the preceding year. Of the twenty-three white men who were enumerators of the Tenth Census on the sea islands during the months of June and July, 1880, there was no day lost from work on account of sickness, though many of them were actually unaccustomed to the exposures which the work necessitated. Doubtless the prophylactic use of quinine has had something to do with the apparently increased healthfulness of this section; but it is also true that the danger to health was formerly greatly over-estimated, and, with thorough drainage and careful attention to the rules of health, and especially to securing pure drinking water, there is no question that fevers might be expelled here as completely as they were from the fens of Cambridgeshire, in England, where they once prevailed, but have since yielded to the above methods. During the excessively hot and dry Summer of 1728 "yellow fever" made its first appearance in Charleston. At greater or less intervals of time it has since visited the city during the Autumn months. After 1748 it did not make its appearance during a period of forty-four years. John Drayton writes in 1801 to the natives and long inhabitants of the city, "it has not yet been injurious." The germs of this disease have never been naturalized on this coast and require a fresh importation every year, an epidemic occurring in Charleston during the war being clearly traced to a vessel from Havana that had run the blockade, and, as Mr. Drayton describes it, it still remains restricted to certain localities, within a few miles of which perfect immunity from it may be enjoyed. This was clearly shown in the very fatal epidemic imported into Port Royal in 1876, causing a number of deaths there, while no case originated in the town of Beaufort, four miles distant, to which place, however, patients suffering from the disease in Port Royal were carried for treatment. In conclusion, we may safely claim that South Carolina in its entirety is one of the healthiest of the Southern States.

Report of the Standing Committee on Endemic and Epidemic Diseases.

J. FORD PRIOLEAU, M. D., CHAIRMAN.

This Committee would respectfully report that they have carefully gone over the reports of the Sub-Committee, submitted to the State Board of Health in accordance with the Act establishing the State Board of Health. Section 916, which reads: "The Sub-Boards, constituted as herein provided, and local Boards of Health already organized, are charged with the duty of investigating within their district all matters of sanitary interest of scientific importance bearing in any wise upon the protection of the public health, and *shall report to the Executive Committee at such times and in such manner and form as the Executive Committee may prescribe.*"

The Committee are pleased to be enabled to say that, from the reports received and from all the information they can gather, the State has escaped the infliction of any epidemic during the past year, and the endemic diseases which have prevailed are such as usually attend the several localities at the separate periods of the year—Winter, Spring, Summer and Autumn. The sub-reports are presented to your honorable body at this the annual meeting, with the recommendation that they appear in the Annual Report for the fiscal year ending October 31st, 1883, as conveying much valuable information and important suggestions.

The Standing Committee express great regret at the limited number of the sub-reports received. There are now organized throughout the State forty-nine Sub-Boards; of these but fourteen have complied with the enactment and furnished reports. From this limited number the healthfulness of the State and its sanitary condition can only be gathered an inadequate amount of information to afford the necessary data upon which to express a decided opinion, so that your Committee have been forced in a great degree to rely upon the questionable authority of private inquiry. From these sources they gather that malarial diseases have been more rife than usual, and that in some localities—near the banks of rivers and their numerous branches and creeks—many of the diseases have assumed a malarial character—(notably typhoid fever)—arising from either the entire drying up of their waters or from their diminution from the drought of the past Spring and Summer.

Your Committee note the increased and increasing number of cases of consumption, (phthisis pulmonalis,) of syphilitic diseases among the negro race, and also the increased ratio of insanity both in the white and the colored population.

We hear also that the arrangements for the proper care, such as hu-

manity demands, of the medical attention for the indigent in several localities in the State are very defective, and but little attempts have thus far been made to ameliorate their condition.

Your Committee would again seriously call to your notice the great importance of the preparation and the forwarding to this Board the returns of the various sub-Committees, which we have above stated are so very few. Not only are these communications few in number, but many of them are also very brief—so brief, in fact, as not to afford the knowledge aimed at by the Board of Health. Surely it is a duty which such Committees owe, not only to the communities over which they have sanitary jurisdiction, but to the citizens of the State, to inform them of the condition of their charges. It is often that erroneous ideas are held that some cities, towns or villages are unhealthy; that during the Winter months, from a fancied or actual exposure, the inhabitants suffer from pulmonary disorders, such as pneumonias, catarrhs, bronchial attacks, etc., and that perhaps these places are visited during the Summer and Autumnal months by malarial and typhoid fevers, by diphtheria, and the like. In looking over the Annual Reports of this Board, where the medical status of these places should be recorded, with the view of the verification or the refutation of such general opinions, we often fail to find what we look for. The test and the only test for such matters are the returns of the Sub-Boards, it being proverbial that the inhabitants of every locality regard their homes as those of perfect health. The true criterions are the returns of the prevailing diseases, the mortality of the places relative to the number of the population and the relative number of deaths to each of the classes of the several diseases suffered from. It is very nearly established that each disease has its own proportionate mortality, and that an increase of this rate presupposes local influence, calling for immediate remedial action. The citizen who is about either to visit a locality or who entertains the idea of a permanent residence should have the privilege of access to reliable information obtained from the most respectable authority. The foreigner, the emigrant, has a moral right to know the sanitary status of the place he is thinking of selecting as a home for himself and his family; to have all questions that may be asked on such subjects answered not by individuals but by the disinterested scientific and authoritative records of the State. The local inhabitant, to the knowledge that his residence and his surroundings will compare favorable with his neighbors, and, if not, to have instituted scientific inquiry into the causes and to demand their removal when such causes have been ascertained. The traveler, to have a reasonable assurance that the place and the home at which he temporarily stops is safe. The Summer tourist in pursuit of health, recreation, or of mental and physical rest, consequent upon prolonged and forced exertion, should be able to

inform himself that the mountain house, the pleasant spring, the bathing place which he has selected, fulfill all the conditions of sanitary order. We should not learn that some cool valley house, some lauded Summer resort, to which we perhaps have sent our family, has had to be closed in consequence of many of its guests contracting typhoid fever there.

These and many of the other benefits, such as will suggest themselves to the intelligent, have so impressed enlightened communities that in almost every place of importance such reports are demanded. In cities and towns the items of mortality, under the general term of "vital statistics," are assiduously collected, published and recorded for future reference and comparison.

Leaving, however, these points, your Committee would suggest, with the view of affording the greatest facility in the preparation of the sub-reports, and of uniformity, that hereafter the Secretary of this Board be requested to have prepared a number of forms, with questions, whose answers will elicit such information as this Board desires, and that he transmit copies to the several Sub-Boards at least one month prior to the annual meeting in October, with the request that the forms be filled, especially that of general remarks, and returned to him for consolidation; and, further, that the Secretary be requested to send to the Chairman of each sub-Committee whatever postage be necessary for the transportation of the report through the mail. It is also suggested that a copy of the annual publication of the transactions of this Board be sent to the Mayor, Intendant or chief officer of each city, town and village in the State as far as practical.

Report of the Committee on Quarantine.

T. GRANGE SIMONS, M. D., CHAINMAN.

The Chairman of the Committee on Quarantine would respectfully report as to the duties performed by the Committee during the past year:

He would premise by stating that he regrets, in common with the members of the State Board of South Carolina and other sanitary bodies interested in the preservation of public health, and especially the maintenance of a proper quarantine system, that the Act of Congress of 1878 giving the National Board of Health control of the quarantine service expired on June 2d, 1883, knowing full well the efficient manner that the National Board had conducted this important service and the prompt and valuable relief afforded by them to local health authorities when such authorities needed their aid in quarantine inspections, or having

stations remote from trade centres where infected vessels could be sent and detained, thus relieving our ports from their dangerous presence, or by the relief afforded by the Emigrant Inspection Service, thus preventing the spread of smallpox, and also by the valuable scientific researches as conducted by the Board in employing distinguished experts to make such important investigations bearing upon the subject of public hygiene and sanitation. The most important of these have been published by the Board; some others hardly less important still remain unpublished. I will mention some of the most valuable of these and their use to every citizen of the United States is at once apparent:

The collection of information from the various health organizations and sanitariums as to the best manner of conducting quarantine, both marine and inland, and the relations that should exist between the National, State and Municipal Boards of Health; also, the best means as to the conduct of a National Board of Health. This report was published with a report from the National Academy of Science, with whom the National Board of Health is required by enactment to co-operate in affording the public such valuable information.

The Commission of experts, consisting of Dr. S. E. Chaille and Colonel J. S. Hardie of New Orleans, Dr. G. M. Sternberg, U. S. A., and Dr. John Guiteras of Philadelphia, who went to Havana and personally gave attention to the study of yellow fever, its pathology, &c. This valuable report has been published.

The experiments conducted by Professor Remsen of the John Hopkins University as to the organic impurities in the air.

The utility and merits of various disinfectants, by Professor Chandler of the New York Board of Health.

The investigation of food adulterations, by Professor Kedrie of Michigan, and the adulteration of drugs, by Professor Lewis Diehl of Louisville, Ky.; also, a report from Dr. Charles Smart, U. S. A., on the same subject.

The report on the diseases of animals, by Professor Law and Dr. T. S. Vardi.

The report of Colonel George E. Waring, Jr., as to the proper construction and size of sewers.

The report of Dr. Elisha Harris of New York on diphtheria and that of Professor Raphael Pumpelly of the United States Geological Survey, assisted by Professor George A. Smith, on the effect of soils upon health was still being pursued. This latter report has immense value, of practical advantage to every one, and we trust will be continued by Congress. It has excited the attention of the most eminent scientific men in all parts of the world.

The investigations of Dr. H. C. Wood and H. F. Formad as to the culture of disease germs by inoculation of animals promises to be of great value in the study of the germ theory, now becoming a matter of research. This last report was a subject of malignant and ignorant invective by carping politicians, who made themselves ridiculous on the floors of Congress by attempting to heap ridicule upon the labors of earnest seekers of truth. The labors of Pasteur, Virchorn, Koch, Crudelli, in Europe, have been fostered by the governments, and the results of commercial value afforded by like experiments in the ravages of the anthrax has saved countless herds of animals of great value. The destruction of sheep from the anthrax has been reduced by the results of Pasteur's discovery of inoculation, and last year (1882) in one department in France 80,000 sheep were inoculated, with a death rate of only 0.65 per cent., against a death rate of 1 in 20 prior to the system of inoculation. Such studies have restored millions of money to the silk industries of France by a patient investigation of the diseases of the silk worm, and the remedy discovered has been of untold value to the country. And now we see a prospect of having scientific investigation as to the cause of cholera in its native haunts in the East, by the God-inspired man, Pasteur, who has made the study of disease germs a mission of his life. He has been encouraged by the aid of government and pensioned for work that the American politician scoffs at in the halls of the National Assembly. It is fortunate for the world that Jenner did not live in proximity to such men as disgrace the halls of our National Assembly at Washington. Dr. Steinberg, of the U. S. Army, is also making malaria a subject of scientific investigation, following the investigations of Klebs and Thomasi Crudelli in Italy. His patient researches have not as yet been conclusive, but we hope and trust that we may yet have results from such researches and that the people will appreciate the value of them.

The report of Dr. J. J. Woodward on yellow fever, the report of Prof. Abbe of the Signal Service on the relations between the meteorological phenomena and vital statistics, and Prof. Remsen as to effects of furnace heat in dwellings, and also the investigations of Prof. Mullet as to impurities in drinking water and its effects upon health, are all of vital importance to the public as affording means to protect themselves from disease and death.

I have dwelt thus long upon the labors of the National Board of Health, as affording an opportunity to those who are not acquainted with the immense work done by them and of the personal value to every citizen of such researches. Much other work has been done by them, all directed to alleviation of human suffering. But Congress has seen fit to allow their work to cease, and on the 2d of June, 1883, the Act giving

them power and means to continue the quarantine service expired, and by the failure of the last Congress to give them any funds to continue their beneficent work the National Board now only exists in name. We hope that the day is not far distant when it will become a department of the government and given power to act. We of South Carolina had fully enjoyed the advantages conferred by the beneficial effects of the National Quarantine Service and felt loth to part with our efficient friends, who had given us such important aid in equipping Sapelo Station as a resort for disease laden ships, bound to our ports, bearing the germs of death and desolation not only to our seaports, but possibly sorrow to every village and hamlet from the seaboard to the mountains. Feeling this responsibility, at the regular meeting of the Board, held in Columbia, S. C., October 5th, 1882, it was

Resolved, "That the Chairman of the Committee on Quarantine be requested to communicate with all other Boards of Health interested in the National Quarantine Station on Blackbeard's Island, Sapelo Sound, and request them to act with this Board in procuring from the General Government the continuance of this point as a National Quarantine Station."

Charged with this duty and knowing well its great value, after some correspondence with Dr. B. W. Taylor, the Chairman of the Board, and Dr. F. F. Gary, who succeeded him, I prepared a circular and an appeal to both branches of the National Assembly in Washington. This was sent to obtain signatures from all the civil and sanitary authorities in the States of Florida, Georgia and South Carolina. I sent the following circular to the several Boards of Health, Boards of Trade, municipal and Executive officers in the several cities and towns in Florida, Georgia and South Carolina. As you will see, it contains a request for signatures and co-operation and that it be returned to me as soon as practicable:

OFFICE STATE BOARD HEALTH, SOUTH CAROLINA,
CHARLESTON, S. C., November 28, 1882.

At the regular meeting of the Board, held in Columbia, S. C., October 5th, 1882, it was

Resolved, "That the Chariman of the Committee on Quarantine be requested to communicate with all other Boards of Health interested in the National Quarantine Station on Blackbeard's Island, Sapelo Sound, and request them to act with this Board in procuring from the General Government the continuance of this point as a National Quarantine Station."

We would, therefore, beg leave to call to your attention this resolution and also request your approval of the memorial which we mail to you, and that you would use such influence as you may be able to control to secure this important measure.

Sapelo Station is deemed essential to the present local quarantine regulations at nearly, if not all, of our South Atlantic seaports, to protect them from the introduction of foreign diseases. This station offers to vessels bound to our ports which may be stricken with disease or be infected, a safe harbor, where all wants can be humanely and generously relieved, and then be allowed to resume their voyage, purified and safe!

The station lies in the direct route of most of the vessels from dangerous latitudes bound to our shores. It is remote from cities and commercial centres, so that nature affords a safe barrier against the spread of pestilence.

We would, therefore, urge upon all Boards of Health, State or local, Chambers of Commerce, Boards of Trade and municipal authorities in the States of Georgia, Florida and South Carolina to unite with us in petitioning and memorializing Congress to continue Sapelo Station; and that we also impress upon our several State Senators and Congressmen the urgent need and great value of this National Quarantine refuge, and earnestly request them to support such measures as will tend to establish it fully and permanently. Please endorse the accompanying memorial to Congress and use all proper influences to secure the desired end. Please forward the memorial to such other Boards and corporations as will help us in this important measure. Prompt action is desired, so that we may forward the petitions to Washington. When the signatures are obtained, please return the memorial to

Yours respectfully,

T. GRANGE SIMONS, M. D.,

Chairman of Committee on Quarantine, State Board of Health of S. C., P. O. Box 705, Charleston, S. C.

APPROVED:

B. W. TAYLOR,

Chairman Executive Committee, S. C. State Board of Health.

To the Honorable the Senate and House of Representatives of the United States:

We, the undersigned, representatives of the Boards of Health, municipal authorities, Boards of Trade, Chambers of Commerce, and others interested in preserving the health and prosperity of the cities and towns in the States of Georgia, Florida and South Carolina, would most re-

spectfully and earnestly pray and urge upon your honorable bodies to consider the great value and need to our South Atlantic States of having the National Quarantine Refuge Station at Blackbeard's Island, Sapelo Sound, continued. The quarantine laws and regulations of all seaports are now framed as having this place as a resort and refuge for infected vessels bound to our shores. It is remote from populous centres of trade, so that disease is not very likely to spread from thence; it lies in the most direct route of all vessels from latitudes usually deemed dangerous; the harbor is safe and commodious, and here the distressed and sick sailor can be treated generously and humanely without risk of spreading disease. We would earnestly pray that this station be permanently established and fully equipped, and that appropriations be made for this purpose. We would also declare our full and continued confidence in the National Board of Health, and request that it be supported with full power and means to carry on the useful measures of public hygiene and sanitation so nobly instituted and carried out by them for the relief and benefit of all parts of the Union. And your petitioners, as in duty bound, will ever pray.

W. D. BLOXHAM,
Governor of Florida.
W. A. COURTENAY,
Mayor of Charleston, S. C.
M. A. DZALYSKI,
Mayor of Jacksonville, Fla.
J. D. PALMER, M. D.,
Pres. Board of Health Fernandina and Nassau Counties, Fla.
EDWARD MITCHELL, M. D.,
Ass't Pres. Board of Health Jacksonville, Fla.
A. W. KNIGHT, M. D.,
Sec. Board of Health Jacksonville, Fla.
H. M. STUART, M. D.,
Chairman Board of Health Beaufort, S. C.
GEORGE WALINHOUR,
Board of Health Beaufort, S. C.
W. H. LOCKWOOD,
Board of Health Beaufort, S. C.
J. S. BAMPFIELD,
JOHN A. JOHNSON, M. D.,
Quarantine Officer Beaufort, S. C.
J. W. COLLINS,
Intendant Beaufort, S. C.
JOHN RICH,
Chairman Board of Health Port Royal, S. C.

GEORGE L. HARRISON,
Member Board of Health Port Royal, S. C.
J. D. MANETT.
J. A. TORRENT.
W. W. ELLIOTT,
Intendant Board of Health Port Royal, S. C.
T. P. BAILEY, M. D.,
Chairman Board of Health Georgetown, S. C.
DAVID RISLEY,
Intendant Georgetown, S. C.
JOHN HANCKEL,
Chairman Board of Health Charleston, S. C.
W. B. HORLBECK,
City Registrar and Sec. Board of Health Charleston, S. C.
SAMUEL Y. TUPPER,
President Charleston Chamber of Commerce.
[SEAL.] B. W. TAYLOR,
Chairman Ex. Com. State Board of Health of South Carolina.

The petition to Congress was made in triplicate, and one copy sent to the State of Florida, and was signed by the Governor, Honorable W. D. Bloxham, and the health and civil authorities of Fernandina and Jacksonville, and returned to me as requested.

I regret to say that the copy sent to Georgia met with a different reception. I wrote to Dr. J. T. McFarland, the Health Officer of Savannah, and sent him several of the circulars. I requested him to attend to the circulation of the petition along the coastwise cities and towns, and then secure the signature of the Governor and return it to me, and then, appending all the signatures to the appeal, I could have one copy for each branch of the National Assembly; but the Savannah Board of Health mutilated the original memorial, and, not heeding my request, did not allow an opinion or appeal from any other of the Georgia ports, but sent the incomplete and marred memorial to Washington to be presented by one of Georgia's Representatives. I vainly awaited its return; then, fearing delay would be injurious, wrote to Dr. McFarland, who informed me of the action of the Savannah Sanitary Council, but gave no reason why such course had been followed in direct opposition to the official request from our State Board of Health. As our State Board had tried to act in harmony with the Savannah health authorities, such unfriendly action on their part, without any explanation, certainly is an occasion for some comment. All other Boards and officers approved of it, and so stated in their letters. The memorial was duly forwarded by the Chairman of our Executive Committee, through the Governor, and

was presented in both branches of the General Assembly in Washington. Our Senators and some of our Representatives interested themselves in this matter, but Congress did not see fit to continue the National Board of Health in power, and no appropriation was given to enable them to continue their important work, so valuable to our whole land.

Under the Act to prevent the introduction and spread of epidemic diseases, now in force, the President had at his disposal the sum of $100,000 to be expended under his direction. We again made an effort to secure the continuance of Sapelo under control of the National Board of Health, and His Excellency Governor Thompson and myself requested Senator Hampton to use his efforts to this end.

The South Carolina Medical Association at its annual meeting (April 25th and 26th) also passed resolutions endorsing the National Board of Health, and requesting that it be empowered to keep open the Refuge Quarantine Station, and sent a memorial to this effect to President Arthur about May 22. The President decided that the expenditure of the epidemic fund should be entrusted to the Marine Hospital Service.

The National Board of Health, at a meeting held June 22d or 23d, then tendered to the President "for use, if considered advisable in connection with the fund placed in his control by Congress for the prevention of the importation and spread of epidemic disease," all of the equipment at Sapelo Island, consisting of boats, supplies for hospital and disinfection of vessels.

I was officially notified by the Secretary of the National Board that Sapelo Station had been opened in May, and again he notified me that after June 30th it would not be continued by the National Board of Health. Not knowing what course would be pursued by the Marine Hospital Service, I addressed a letter to Surgeon General J. B. Hamilton on the 7th of June, requesting information as to the continuance of Sapelo as a resort for infected ships. The season was advanced, and I felt anxious in regard to the existence of yellow fever and smallpox in several South American, Mexican and West India ports. No reply was given by Dr. Hamilton to my letter, but on the 13th of June I received copies of a correspondence from Dr. Hamilton to the Municipal Board of Health of Charleston, in which he replied to them, giving answers to my request for information. The Charleston Board had also requested information of somewhat similar nature about the same time.

On June 13th I again wrote to Dr. Hamilton, calling attention to my unanswered letter and the probability of his having confounded my letter with the one from the Board of Health of Charleston under date of June 15th, 1883. I received a reply stating that my "former communication was confused with one from the City Registrar of Charleston." The letter further states that "a request from the Governor of

South Carolina for a continuance of the station should be made, if your State desires it to remain open." This letter was signed by Dr. P. H. Bailhache, "Surgeon, for Surgeon General Marine Hospital Service, in his absence."

June 19th I addressed a letter to Dr. Gary, Chairman of the Executive Committee of the State Board of Health, informing him of the necessary procedure and requesting him to endorse and forward to Governor Thompson a letter urging upon him the necessity of having Sapelo Quarantine Station kept up, and requesting him to immediately make official request for the continuance of the station. I heard nothing of Sapelo or of the action of any of the departments in Washington.

On the 11th of July reports of yellow fever were rife as existing in several ports that we were in commercial communication with. I wrote to Governor Thompson requesting any information that he might possess as to what the Treasury Department or its sub-department, the Marine Hospital Service, intended to do. Governor Thompson replied, on July 12th, stating that he had officially requested, on the 21st of June, that Sapelo Station be kept up, but "I have no information as to whether any action has been taken in the matter."

On July 13th I wrote again to Surgeon General Hamilton, stating fully my fears, as yellow fever vessels might at any time arrive at our ports, and stating the result of my correspondence with the Governor, and requested of him some information as to what we might expect of the Marine Hospital Service in keeping open the station, also at what time it would be open and who the medical officer would be, so that any official correspondence could be properly addressed.

On July 16th, I received the following telegram:

WASHINGTON, D. C., July 16th, 1883.

T. GRANGE SIMONS, *M. D., Chairman Committee on Quarantine, State Board of Health:*

Sapelo Quarantine Station is open. Dr. Jerry Johnson in charge.

P. H. BAILHACHE,
Surgeon, for Surgeon General.

This dispatch I sent at once to Governor Thompson, and then officially notified the health authorities and Quarantine Physicians at Charleston, Georgetown, St. Helena and Port Royal of the official information received from Washington, and for the first time in several months felt easy as to having a place for vessels that might arrive with disease on board. Under date of July 18th, a few days less than a month, Governor Thompson received an official reply to his urgent request for the continuation of Sapelo Quarantine Station, and the statement that "the

delay in notifying you of the fact was due to an unintentional oversight. As, however, the information was widespread through the newspapers and immediate action was taken, no inconvenience has, I trust, resulted from the delay."

A careful and anxious search of our daily paper, and inquiries at the office of issue, failed to elicit any information as to when such information appeared in print.

I replied to Dr. Bailhache's telegram and thanked him for the important infermation conveyed, and requested information from the office of the Surgeon General Marine Hospital Service as to Consular reports of vessels leaving infected ports for our shores. I received a curt reply "that all such information was given to the Agent of the Associated Press daily." I again wrote to Dr. Hamilton, remonstrating against this course, and called his attention to press reports that were inaccurate and that had been corrected by him officially; also that information had been conveyed to several Boards of Health in regard to vessels leaving English ports with rags for American ports, and also stating my astonishment and regrets that official communications should be conveyed through newspapers, and of my mistrust of information so derived. To my mind such notices savor of patent medicine advertisements; they fill a space in the columns and are paid for, but that few place any credence in the statements contained. That such official notices were but little known, I refer to an article in the Medical News of August 11th, styled "Yellow Fever," on page 155. I quote as follows: "We have no information as to whether any use is being made of the Sapelo Sound refuge station on the Georgia coast." This widely circulated and valuable journal takes especial pains to collect information as to the spread of such diseases as may prevail as epidemics, and each number contains some news as to the extent and spread of such diseases at home and abroad. With a full clerical force and free postage, a department of the United States Government should transmit official information in regard to health direct, and not through the medium of news agents and irresponsible newspapers.

I have since, under date of August 1st, received a very satisfactory letter from Dr. Hamilton, in reply to mine, and he has consented to furnish our health authorities with information as to departure of infected vessels. I do not oppose the administration of quarantine affairs as conducted by the Marine Hospital Service, but would like to see greater attention paid to official correspondence and proper notice extended of information that will afford local health authorities some information that will protect them from false statements from interested ship masters. I have expressed to Dr. Hamilton our sincere desire to co-operate with any department of the government that has the sacred object of

protecting our whole land from invasion and desolation from disease. I trust that the Marine Hospital Service will in time acquire the confidence and support of all State and local Boards, but must confesss that their actions so far are not above criticism. With a threat of cholera too much care cannot be taken, and every means of affording information and protection should be studied by this department, who have a disciplined corps of medical officers, who have had claimed for them eminent qualifications for administering quarantine affairs. This claim is yet to be proven ; and for the reputation of the service and the benefits to accrue to the public from such competency, I trust that they may not be found wanting in the time of trial, should the dread necessity arise. I have diligently studied all reports of disease as prevailing in foreign and domestic ports, and have from time to time extended to our Quarantine Physician my personal views and results of observations of current reports. The spread of cholera in the East, while it has not been much increased as to mortality, yet its presence is still a menace, and it may arouse from its passive state and extend its march over sea and continent and again visit our land. A close watch is enjoined upon all of our quarantine officials, and I trust our shores will not have the unenviable reputation of having had imported the first case of this disease.

European authorities have taken precautionary measures to prevent the introduction of this disease. Until it does appear in Europe we are comparatively safe, as it has on previous occasions followed the lines of emigration and travel from the North of Europe. The large and ever increasing tide of emigrants from Bremen and Hamburg, arriving on our shores after short passage by steamers crowded with persons, under all sorts and conditions of social relations and from all parts of Northern Europe, may at any time be the means of introducing this dread visitor. The lines of travel to Canada are to be considered as also equally liable to lead to introduction. Close inspection of passengers and goods arriving may prevent much disaster. The work of our Quarantine Physicians has been faithfully discharged, and I believe that our method is efficient and each year will improve. Some minor points, however, must claim our attention, and I would most earnestly request a careful consideration from the Board to the several points that I shall call to their especial notice.

The question of fees as now collected and the illegality of such manner of collection must carefully claim your attention. The decision of the United States Court as to the quarantine dues collected at New Orleans was adverse to the State. The recent decision of our State Supreme Court in the case of the "Schooner Marcus Edwards *vs.* the Harbor Commissioners of Charleston," also discussed the question of "tonnage tax." It was decided that a tax "without a service rendered"

was illegal; but in the case of quarantine fees we have an equivalent rendered and material consumed in disinfecting and fumigating the vessels and time and expert service rendered to this end, that the vessel may be purified of foul and noxious germs of disease that render her unsafe to allow *pratique*. A reasonable reduction of the table of fees I think is expedient and proper. At the time when the present fees were recommended I was at a loss to report any system of rates that would ensure a proper and safe amount of purification to the foul vessels and we reported the rates used in Savannah. Experience has proven that these are unnecessarily high and impose restrictions upon commerce that need not be borne. Complaints from Consuls and ship agents have been made, and with just cause, as to the present high rates. I deem that vessels from infected ports, or arriving in such a foul condition that they would endanger the lives of the community at the port of entry, should be rigidly dealt with and carefully and thoroughly purified, and that the fees should be commensurate to the time and labor involved in rendering them safe to admit to "*pratique*," but I do not want any unjust or tyrannical exaction of dues to be made. After careful consideration of the matter and consultation with merchants and parties interested, also with the Chairman of the Harbor Commissioners of Charleston, Hon. W. A. Courtenay, whose experience in shipping and marine mercantile pursuits render his opinion of great value, I would recommend that a reduction of 33 to 40 per cent. be made on the present rates for fumigation and disinfection. The sum received from these rates will, I think, be amply sufficient to conduct the service efficiently at all the ports except Port Royal Station, and at this place I would recommend that $150 additional to $150, the sum now allowed for boat hire, be appropriated, this sum to be expended by the Quarantine Officer in maintaining the efficiency of the service. By the reduction of the present rate of fees this port will require additional appropriation. The arrivals are few and do not now more than barely remunerate the costs of the service of inspection and purification. A reduction of revenue will render the whole system of quarantine at this place inoperative and disease may be introduced that will extend far and wide along the route of the railroad extending from the town. This small service, however, requires that careful attention be paid to its proper performance, and if a few or many vessels arrive the officials and employees must be ready to afford them all that is required in the way of proper inspection and purification, and that no unnecessary delay is made in prompt response to the signals of all vessels arriving.

ST. HELENA STATION.

This important station, with its increasing number of arrivals, should be equipped with greater facilities for the proper discharge of the requirements made upon the Quarantine Physician. The present buildings occupied by the physician and those of the boat hands are illy suited. Dr. Sams's residence is a small frame building—too small for comfort. Those occupied by the boat hands are not worth repairing and hardly habitable.

The Board authorized me to act with Dr. Sams and erect proper buildings, but the advisability of such a step was referred to the Attorney General, who gave an opinion adverse to building until the State could make an appropriation to buy the island for a site for the buildings. As to the right of the Board to acquire property, he did not think we had such power. I would suggest that we recommend to the Legislature to appropriate an amount equivalent to $800 for the purchase of Buzzard Island, and also to build a proper wharf to replace the one destroyed by the gale of August, 1880; for this latter object ———— is required.

We should at least see that our officers and employees are securely protected and in comfortable dwellings. I hope that before the season for active quarantine service again commences Dr. Sams will have a well appointed home. I would respectfully urge that the State Board of Health impress upon the Legislature the necessity of obtaining Buzzard Island, and that the appropriation be granted for its purchase. Land in this locality is valuable, and the phosphate industries render suitable places near deep water of great value. Nor is it desirable to have the station near any of the thickly inhabited points. The secluded and admirably adapted position of Buzzard Island renders it particularly adapted for a quarantine station. It contains about ten acres of high land. The sum asked for it has been offered by other parties, but we have the refusal of it. The titles are in possession of the present owner and no United States military tax claim or sale affects them. The amount now held at this station will erect suitable buildings that will make the Quarantine Officer comfortable, but will not suffice for the wharf. The erection of the buildings by Dr. Sams and myself has, by your action, been provided for, and estimates are now held until the State will acquire possession of the island.

The island is the most suitable place for the residence of the Quarantine Officer, as it is accessible and is healthy. The present locations of the buildings on it, and occupied by Dr. Sams and his boat's crew, are not desirable. The gale of 1880 covered this portion of the island and nearly swept away the houses. The wharf was completely destroyed,

As instructed by the Board, I visited the St. Helena and Port Royal Stations early last Summer. Dr. Sams and myself, after a careful survey of the island, selected a site for the proposed buildings on the opposite end of the island, nearer the sea. This location is one of great beauty, high above the highest pitch of tide, and surrounded by a grove of live oaks, cedars and majestic palmettos. It commands a clear, unobstructed view of the approach at sea of incoming vessels. The wharf can easily be built at this point, as it is nearer deep water than the site of the old wharf. The present cheerless and illy appointed condition of this station should not be longer allowed. The Quarantine Physicians are of necessity secluded in their lives and are cut off from association with all society by the exacting nature of the duties required of them.

PORT ROYAL STATION.

The location of this station shows the good judgment exercised by the Commissioners appointed by the Legislature. I visited this place with great pleasure. The residence of the Quarantine Physician is well located on a high bluff at the end of Paris Island, near the mouth of a bold, navigable creek, that admits easy approach at all times of tide. The station commands an extended view for miles around. The hospitals are well constructed and sufficiently furnished with cots, bedding, furniture and other appliances as to render them capable of affording suitable relief to the sick. As yet they have not been occupied. They are constructed on the pavilion style, well ventilated, with large windows and doors. A long piazza protects them from glare. They are also furnished with stoves that will ensure warmth in Winter. Dr. Johnson has everything around the station in order and rigidly clean. The proposed reduction of the fees will render it necessary that an additional amount be appropriated by the Legislature to maintain this station. One hundred and fifty dollars is now appropriated for boat hire, but this will not be sufficient. The service of the Quarantine Officer is required to board all foreign arrivals, even during the Winter months, and labor commands more remunerative pay to boatmen at the various phosphate works. The inspection and fumigation fees but barely are sufficient to afford Dr. Johnson means to complete his work in this direction and will not admit any reduction of revenue from this station. Dr. Johnson reports a balance of only $6.12 on hand. I would therefore urge that $150 additional be asked for to maintain the efficiency of this station, this sum to be in addition to the present appropriation of $150 for boat hire, as I have already mentioned that as a distributing point disease could easily be carried from Port Royal by the railroad to remote portions of this and adjoining States, and no precautions should be left undone to prevent such calamity.

GEORGETOWN STATION.

The arrivals at this station are but few, and rarely a foreign vessel or one from foreign ports arrives; but with the immense forests lying adjacent to the several bold rivers that flow into Winyah Bay, the lumber business must at no distant day command a trade with West India and South American ports. The United States engineers are now engaged in removing the obstructions to navigation in these rivers. Dr. Edmund Mazyck is the physician in charge, having been appointed upon the recommendation of this Board by Governor Thompson in January last. I append to this a part of a letter from him, as I deem it of much interest. It accompanied his report of arrivals at the station to October 1st, 1883:

SOUTH ISLAND, S. C., September 15th, 1883.

T. GRANGE SIMONS, M. D., *Chm'n Quar. Com., State Board of Health.*

DEAR DR.: * * * * You will observe that the arrivals from foreign or infected ports have been only two (2) since my service commenced here. The trade which brings foreign vessels into Georgetown is principally lumber and shingles, and is carried on, for the most part, during the Winter months. The work proposed, and in measure begun, for improving the navigation of streams leading to this port will, it is expected, greatly increase this business, and with it the greater liability to the importation of infectious diseases. Georgetown and its surroundings would prove a fertile hot-bed for the spreading of such—the larger proportion of its inhabitants being negroes, thoroughly imbued with the ignorance, prejudices and carelessness so common to that race and so impossible to eradicate. I would mention here, as proof of this, that frequent efforts made by me to afford them the benefits of vaccination, even gratuitously, have been wholly disregarded. And I believe I am within bounds in saying that five-sixths of the negro population here are ripe for the spread of smallpox. This would not entirely apply to the population of the town proper, inasmuch as the municipal authorities there provided pretty adequate means of vaccination some time since; but the vagabondish habits of the negro are such that, in all probability, there are as many subjects for vaccination now in Georgetown as there were at that time. Knowing the class of people we have among us, cannot the State Board of Health induce the Legislature to make vaccination compulsory? Pardon any apparent presumption in this suggestion, but if we can protect ourselves from one infection it is worth the effort.

So far the health of the country surrounding us has been good. The Summer has been (with but slight exceptions) cool, and with but few

sudden changes of temperature—the greatest change occurring within the past week; and already there is a tendency to the fevers not unusual during the months of August and September, but from which there had been marked exemption.

With regard to the means of accommodating sick seamen with hospital attendance, &c., I can only say that no arrangements have ever been made for this, nor do I think that now would be the proper time for urging upon your Board the immediate necessity for such. At present I think it would be possible, should the necessity arise, to obtain quarters for such infected patients as might require removal.

Very respectfully, &c.,

EDMUND MAZYCK, M. D.,

Quarantine Physician, Georgetown, S. C.

CHARLESTON STATION.

The work accomplished at this station and the efficiency of the various measures carried out reflect great credit upon Dr. Robert Lebby, Jr., the untiring and conscientious physician in charge, who has devoted his time and best energies to maintain the health of the port. Early in June last rumors were circulated that the U. S. Custom House Collector had commissioned an officer of his selection and intended placing him at the quarantine station. On the morning of June 7th it was announced in the News and Courier that Mr. W. H. Gannon had been commissioned "Inspector" and ordered to quarantine. As vessels come with cargoes but seldom to the quarantine station, and none were there at that time, I felt anxious as to future interference of this sort destroying the efficiency and security of the quarantine. Our quarantine laws forbade the approach of any person except a pilot on board of any vessel entering port from foreign suspected or infected latitudes, and even this pilot must remain on board until discharged by the quarantine officer. Violations of such laws were liable to a penalty of $2,000, with or without imprisonment, if the Court so decided. Under Act of Congress of February 25th, 1799, still in force, Congress abstains from asserting any authority to interfere with the quarantine regulations of any State and distinctly recognizes the right of the States to have such police regulations to maintain public health; it also compels all officers of revenue and Custom House officials, revenue cutters, officers of the army and navy, to respect and aid in the enforcement and execution of quarantine laws to maintain health. I could not but look with mistrust at this appointment made and the officer ordered to duty at the station without any previous notification or consultation with the health authorities. I wrote to Mr. John Hanckel, Chairman of the Board of Health of Charleston, expressing my views, and calling attention to the United

States laws on the subject. I give you the correspondence that I was furnished with. This will convey to your Board the facts as they occurred:

DEPARTMENT OF HEALTH,
CITY HALL, CHARLESTON, S. C., January 8, 1883.

To T. GRANGE SIMONS, M. D., *Chairman Quarantine Com. State Board of Health.*

DEAR DOCTOR: I beg to state that your communication, June 7th, in reference to the appointment by Collector T. B. Johnston of Wm. H. Gannon as Inspector of Customs at Fort Johnson, was read at a meeting of the Board of Health held this day.

I am instructed to acknowledge the receipt of the same, and forward for your information the action taken by the Board of Health of Charleston. A copy will be forwarded to Collector Johnston of the opinion of Mr. Bryan, and a full copy of the action of the Board to the National Board, and the Secretary of the Treasury through the National Board.

Respectfully,

H. B. HORLBECK, M. D., C. R.

[*Official Copy.*]
OFFICE OF CORPORATION COUNSEL,
CHARLESTON, June 7, 1883.

JOHN HANCKEL, ESQ.

SIR: As requested, I have examined the law relative to the powers and duties of the Board of Health over the quarantine at this port in connection with the letter of Mr. Johnston, Collector of Customs, of date 5th June, 1883. By the Act of the Legislature of this State, approved December 20th, 1881, the maintenance of the quarantine at this port devolves upon the Board of Health of the City of Charleston, and full power for this purpose is granted them by the said Act. Section 3 provides that "all masters of vessels or other persons violating any of the provisions of this Act, or disobeying any of the published regulations of the health authorities of any port, and all persons whoever who shall, without permission of said authorities, invade the quarantine grounds or station of such port, or who shall hold any communication, or attempt to hold any communication, with any vessel, or any officer or any passenger or member of the crew of any vessel lying at quarantine, or under control of the said authorities, shall be guilty of a misdemeanor, and, upon conviction, shall be punished by fine not exceeding two thousand dollars, or by imprisonment not exceeding twelve months, or both, in the discretion of the Court." I am of opinion that this applies as well to the officers of the

customs as to all other persons, and the power of Health Boards has been distinctly recognized by Congress in their enactment relating to the public health, as follows: United States Revised Statutes, Title LVIII, The Public Health, Section 4792: "The quarantine and other restraints established by the health laws of any State respecting any vessel arriving in or bound to any port or district thereof shall be duly observed by the officers of the customs revenue of the United States, by the masters and crews of the several revenue cutters, and by the military officers commanding in any port or station on the sea coast; and all such officers of the United States shall faithfully aid in the execution of such quarantine and health laws according to their respective powers and within their respective precincts, and as they shall be directed from time to time by the Secretary of the Treasury. But nothing in the Title shall enable any State to collect a duty of tonnage or import without the consent of Congress."

Also Act of Congress, April 29th, 1878, to prevent the introduction of contagious or infectious disease into the United States. Sections 2 and 5: "And the said Surgeon General of the Marine Hospital Service shall, under the direction of the Secretary of the Treasury, be charged with the execution of the provisions of this Act, and shall frame all needful rules and regulations for that purpose, which rules and regulations shall be subject to the approval of the President; but such rules and regulations shall not conflict with or impair any sanitary or quarantine laws or regulations of any State or municipal authorities now existing or which may hereafter be enacted."

"At all other ports where, in the opinion of the Secretary of the Treasury, it shall be deemed necessary to establish quarantine, the medical officers or other agents of the Marine Hospital Service shall perform such duties in the enforcement of the quarantine rules and regulations as may be assigned them by the Surgeon General of that service under this Act: *Provided*, That there shall be no interference in any manner with any quarantine laws or regulations as they now exist or may hereafter be adopted under State laws."

The only case in which the officers of customs are permitted by the laws of the United States to interfere with or have supervision over vessels subject to the quarantine of the State is provided for in Section 4793 of the Revised Statutes of the United States, Title LVIII, "The Public Health," as follows:

"Whenever by the health laws of any State, or by the regulations made pursuant thereto, any vessel arriving within a collection district of such State is prohibited from coming to the port of entry or delivery by laws established for such district, and such health laws require or permit the cargo of the vessel to be unladen at some other place within

or near to such district, the Collector, after due report to him of the whole of such cargo, may grant his warrant or permit for the unloading or discharging thereof under the care of the Surveyor or of one or more Inspectors, at some other place where such health laws permit and upon the conditions and restrictions which shall be directed by the Secretary of the Treasury, or which such Collector may for the time deem expedient for the security of the public service."

And whenever a vessel is to unload her cargo *at quarantine*, the Collector may have the same supervised and cared for and send his Inspector there for *that purpose*, and *that purpose only;* and if the vessel is to be unloaded *without* the quarantine limit, the Collector has no power to send an Inspector within the limit of quarantine for any purpose whatever without the permission of the Board of Health.

Respectfully,

G. D. BRYAN,
Corporation Council.

[*Official Copy.*]

QUARANTINE OFFICE, CHARLESTON HARBOR,
FORT JOHNSON, S. C., June 5th, 1883.

DR. H. B. HORLBECK, *Secretary.*

DEAR DOCTOR: Herewith you will find enclosed a communication, dated June, 4th, 1883, and received this date by me, which explains itself. I beg leave to state that I declined to permit Mr. W. H. Gannon to land at the Quarantine Station and referred the officer and himself to the Board of Health of Charleston.

It seems to me that it would be proper for the Board to ascertain what are the duties of Mr. W. H. Gannon to be at this station, and in how far they may conflict with the operation of the quarantine laws of the State; whether he is to board vessels and come in contact with them, and whether he is to be allowed to come and go from this station or not.

Respectfully,

ROBERT LEBBY, JR., M. D.,
Quarantine Officer.

[*Official Copy.*]

CUSTOM HOUSE, CHARLESTON, S. C.,
COLLECTOR'S OFFICE, June 4, 1883.

SIR: I have the honor to inform you that the Honorable Secretary of the Treasury has ordered the assignment of an Inspector of Customs for

duty at Quarantine Station, and for this purpose Mr. Wm. H. Gannon has this day been commissioned by me.

Please assign him the quarters intended for such an officer, and I will also thank you to extend him what courtesy you can in the discharge of his duty.

Very respectfully,

Your obedient servant,

T. B. JOHNSTON,

Collector.

To DR. LEBBY, JR., *Health Officer, Port of Charleston, S. C.*

[*Official Copy.*]

CUSTOM HOUSE, CHARLESTON, S. C.,

COLLECTOR'S OFFICE, June 5th, 1883.

GENTLEMEN: I would respectfully inform your honorable body that the Honorable the Secretary of the Treasury directed that an Inspector of Customs be assigned to duty at the quarantine station at this port from 1st June to 1st November, 1883.

Under and by virtue of this authority, I appointed and commissioned Mr. W. H. Gannon, who, under my instructions, started this day for the place designated, with a view of entering upon the discharge of his duties; but, when Mr. Gannon arrived at the guard boat, he was, to my surprise, forbidden to enter the quarantine grounds by Dr. R. Lebby, Jr., your Health Officer.

Before bringing the matter to the attention of the Department at Washington, I desire to be informed if the action of Dr. Lebby, your officer, is sustained and countenanced by your Board.

I have the honor to be, very respectfully,

Your obedient servant,

T. B. JOHNSTON, Collector.

To the Honorable Board of Health, Port of Charleston, S. C.

JUNE 8th, 1883.

T. B. JOHNSTON, ESQ., *Collector of the Port of Charleston.*

SIR: I am instructed by the Board of Health to acknowledge the receipt of your favor of the 5th instant in relation to the matter of an Inspector of Customs attempting to land at the quarantine station without permission of the Board of Health.

Under the opinion of the Corporation Counsel, a copy of which is herewith enclosed, the Board sustain the action of the Health Officer in

refusing him permission to land, as there was no vessel unlading or attempting to unlade her cargo, and, consequently, no duties which called the officer to the station.

The Board will at all times aid yourself and your subordinates in the protection of the United States customs, and will be pleased that you should at any and all times call upon them for this purpose; but they cannot consent that the quarantine be broken or interfered with by any person whomsoever, as the law has devolved upon them the duty and responsibility of keeping out of the United States (as far as this port is concerned) all infectious diseases.

Respectfully,

H. B. HORLBECK, M. D.,
City Registrar and Secretary.

DEPARTMENT OF JUSTICE,
OFFICE SOLICITOR OF THE TREASURY,
WASHINGTON, D. C., July 20, 1883.

SIR: I have the honor to return herewith a letter addressed to you by the Collector of Customs for the port of Charleston, S. C., together with certain correspondence that has passed between the Collector and the health authorities at said port relating to the assignment of an Inspector of Customs for duty at the quarantine station established there. The Collector reports that an Inspector of Customs was duly appointed under the authority given by the Treasury Department and assigned to duty at quarantine, but the Health Officer on duty refused to allow said Inspector to enter the quarantine grounds.

The Collector's letter is referred to me for "opinion as to whether the Secretary of the Treasury can place an Inspector of Customs in the warehouse provided for by Section 4794 Revised Statutes."

While the regulations now in force only provide for the care and custody of bonded warehouses by officers known as storekeepers, I am clearly of opinion that the Secretary of the Treasury can (under the general authority conferred on him to superintend the collection of the revenue) designate an Inspector or other officer of the customs to take charge of a warehouse established under that Section, or the public warehouse or enclosure that may be designated by a Collector under Section 4795 Revised Statutes.

Very respectfully,

K. RAYNER,
Solicitor of the Treasury.

Hon. CHAS. J. FOLGER, *Secretary of the Treasury.*

The Solicitor of the United States Treasury Department has decided that under Section 4795 the Collector of the Port has the right to station an Inspector at the warehouse near the wharf at Fort Johnson. The present established quarantine is located here by State law, but part of the land is the property of the United States Government and this gives an undoubted right as to the presence of such officer, but his movements should be regulated and under the control of the Quarantine Physician, who alone is competent to act in such matters; for if an infected cargo should be placed in the warehouse and the Inspector be allowed to leave quarantine at any time with only the Custom House officials to control his movements, the efficacy of the quarantine to protect the city of Charleston ceases and all precautionary measures are valueless. I do not know if the Collector has recognized the right of Dr. Lebby to control the movements of the Inspector. No such recognition is implied in the correspondence that has passed between the Collector and the health authorities of Charleston. It is the first time that the Custom House officials have ever attempted to interfere with the State regulations controlling quarantine, and I fear that it will result in further complications and the risks to the city of having disease brought in increased. It is certainly not in accordance with the action of the Revenue and Custom House officials heretofore, who have always assisted in keeping the quarantine inviolate. In ———————— the Captain of the revenue cutter placed his vessel as a guard boat to protect the station for a long period, and during this time fired upon and brought on board his vessel the crew of a small boat that entered quarantine. Their mission was to serve a legal process from the United States Marshal's office upon some vessel in quarantine. They thought that, armed with such authority, they need not report to the Quarantine Physician first, but go right aboard the vessel. But the Captain of the cutter sent them back to the city with their mission unaccomplished. The papers were served in due time, but through the proper channels. The quarantine officials, of course, are always ready to maintain the majesty of the law, both National and State, and I should regret any conflict between them, as no occasion should arise. The sacred duty of preserving the health of the port should be sought after by all officials, for disease introduced at any port endangers the lives and prosperity of persons at remote points. I trust that matters may be judiciously managed, but deem it my duty to call attention to what I think threatens danger to our whole quarantine system.

I was requested by the Board of Health of Charleston in August to give an opinion as to the expediency of declaring non-intercourse with South American, Mexican and other ports infected with yellow fever, and that the city Board of Health had some communication from the Louisi-

ana State Board of Health on this subject. In my reply I stated that personally I was opposed to such a system as injurious to commerce; that I could see no reason for its adoption. We have been most earnestly active to have the United States Government, in its departments of the National Board of Health and the Marine Hospital Service, to maintain a quarantine refuge at Sapelo for vessels that are considered dangerous to admit to our ports, and, now that the station has been opened, to declare non-intercourse would imply that we had no use for such stations, nor could we expect that such stations would be permanently equipped as we desire; also that such course was in violation of our State laws and opposed to the usage and spirit of our State Board of Health. In a subsequent communication from the Board of Health of Charleston, I was informed that no desire existed on their part to adopt such an exclusive system.

I have requested information from all the quarantine officials as to reports from their stations, and will now call attention to a comprehensive statement made by the Secretary of the Health Department of Charleston. I have deemed it of such interest that I quote as follows:

CITY OF CHARLESTON,
DEPARTMENT OF HEALTH, September 15th, 1883.

T. G. SIMONS, *M. D., Chairman Quarantine Committee Executive Committee State Board of Health.*

DEAR DOCTOR: I beg to state that your communication requesting information as to the quarantine service of the port of Charleston, as at present conducted, was read at a meeting of the Board of Health held September 7th ult., and the Secretary was instructed to acknowledge the receipt of the same and make reply.

I beg to state that, in accordance with the Act of the General Assembly, ratified December 20th, 1881, placing the administration of the quarantine of the port of Charleston under the control of the municipal Board of Health of Charleston, that body assumed charge of the quarantine March 2d, 1882, the date of their organization.

On March 9th, 1882, R. Lebby, Jr., M. D., reported for duty as Quarantine Officer under appointment of His Excellency Governor Johnson Hagood. During 1882, from April 1st, there were 268 arrivals and examinations at the station, 73 being from latitudes considered suspected or infected, including 3 or 4 from Cape de Verde and the Canaries, 14 from Havana and 2 from Rio de Janeiro.

Twenty-one of the above were fruit vessels. During 1883, from January 1st to September 1st, there have been 235 arrivals and examinations at quarantine, 95 being from suspected or infected latitudes, 3 or 4 from

Cape de Verde and 2 or 3 from Africa, 18 from Havana and 18 with fruit.

All vessels from suspected and infected latitudes, in accordance with rule, were fumigated with sulphurous fumes and disinfected with copperas and carbolic acid once between November 1st and May 1st, and twice between May 1st and November 1st. And all vessels from suspected latitudes *via* American ports are fumigated and disinfected once.

All ballast, in accordance with rule, from infected or suspected latitudes is deposited at the quarantine station or in Hog Island Channel at a point designated by the Board of Harbor Commissioners.

The quarantine has been conducted in accordance with the laws of the State, and it has been thoroughly effective, no case of infectious or contagious disease having been developed in the city through the shipping.

The sanitary processes adopted for the proper cleansing and disinfection of all vessels and the deposition of all ballast from suspected or infected ports outside the city limits, and the care with which non-intercourse with suspicious vessels has been carried out, are all means of protection against the importation of disease through the harbor.

During the year 1882 from May 1st to November 1st, and in 1883 from May 1st to date, a guard boat has been employed and stationed at a suitable distance from the Western terminal buoy, (No. 4,) the same under the command of a Captain and three men, whose duty it is to prevent communication with vessels at quarantine, and prevent landing at the quarantine wharf, except by permission of the Quarantine Officer. The guard is armed with Winchester rifles, and the rules as to non-intercourse are believed to be efficiently carried out. The officer employed in charge of the guard boat service, he furnishing guard and boat, is under a security bond for faithful performance of contract.

The quarantine service of the port is thorough under present management and affords protection to the valuable port facilities which Charleston offers to the commercial world. It is the result of constant endeavor, with the best interests of the community constantly in view.

The fees collected afford valuable assistance in keeping up the service, and without them it would be impossible to carry on quarantine procedure in any way commensurate with the style and manner which the grave importance of the interests involved demand. The fees, as arranged now, were adopted after careful consideration, and it is believed that any change in them will be productive of mischief and confusion. The pressure of the fees is upon vessels from infected latitudes; it were for the best interests of Charleston that these vessels should not come to Charleston, as they bring no freights, (except fruit vessels, which are kept thoroughly cleanly and are not allowed in quarantine season,) and are a constant menace to Charleston, and are liable to keep off the shipping

of the world by infecting the port. If they will come, knowing the strict nature of quarantine here, the detention fees and purification, there can hardly be but one answer, and that is, that in spite of the present schedule of fees it is profitable.

By the use of the funds collected the Board of Health have had built, at a heavy outlay, a large and commodious wharf. This wharf is built of first class material—logs all sheathed with zinc. It is of greater dimensions than the former one and extends ten feet further into the channel, affording twenty-one feet of water. The necessity of this outlay, and the building, or, rather, replacing, the old one, was, that owing to the depredations of the "Teredo Nivalis," the old structure, after only eighteen months' service, was rendered useless, the piles having been eaten away.

By the expenditure of a sum of money the Board of Health have secured first class telegraphic communication with the quarantine station, the service being all but perfected, and there will be permanently stationed at quarantine a telegraphic operator, affording constant facilities to the shipping. Who would quarrel with the payment of a comparatively insignificant sum which secures a healthy and remunerative port of entry and trade? There is immediate demand for the expenditure of funds for the purchase of suitable boats for boarding and the transportation of disinfecting supplies, etc., those used heretofore being worn out.

There is required a cistern, which should be substantial and of brick, the wooden tanks erected by the National Board of Health and State being useless.

Immediate demand is made upon the service for the furnishing quarters for the boat hands, repairing of the fever and pest house and repainting the station house.

In the immediate future it is essential to have erected a proper tramway (now contracted for) from the wharf and upon it, and the adoption of some quick system of unloading, so as to forbid delay, there having been at times four or five vessels anxious to unload at the same time the ballast required to be deposited out of the city.

Any effort to destroy the present convenient and effective method of securing a means of protection and collection should be deprecated. Should, however, such action be taken and a decree obtained denying the constitutionality of the present fee schedule, the authority should be obtained from the Legislature giving the right to the municipal authorities of Charleston to make such charge for boarding and purification as they may deem requisite.

The prime necessity of the health, well-being and great interests of the many of the metropolis of the State should not be jeopardized by the interests of the very few who visit our shores for personal gain,

bringing possible and probable disease and commercial disaster in their train.

Respectfully,

H. B. HORLBECK, M. D.,
Secretary.

Number of vessels arriving at and inspected, passed or detained at the several quarantine stations from October 1st, 1882, to October 1st, 1883:

GEORGETOWN STATION.

	Arrivals.	Detained.
Barks	1	
Brigs	5	
Schooners	1	
Total	7	

CHARLESTON STATION.

	Arrivals.	Detained.
Steamships	69	17
Barks	232	49
Brigs	43	30
Schooners	74	12
Total	418	108

PORT ROYAL STATION.

	Arrivals.	Detained.
Steamships	3	
Ships	1	
Barks	10	3
Brigs	1	
Total	16	3

ST. HELENA STATION.

	Arrivals.	Detained.
Steamships	28	2
Barks	53	18
Brigs	3	
Schooners	2	
Total	86	20

Report of the Standing Committee on State Penal and Charitable Institutions.

J. FORD PRIOLEAU, M. D., CHAIRMAN.

Mr. Chairman and Gentlemen of the Executive Committee of the State Board of Health:

We have the honor to report that, in accordance with a provision of the Act organizing the State Board of Health, your Committee has within a short time made the annual inspection and sanitary examination of the State penal institution, its Penitentiary.

It gives them much gratification to say that they found this prison in the highest sanitary condition; evinced not only by the perfect order, cleanliness and arrangement of its buildings and grounds, the adaptation of its system to the requirements which the discipline of its unfortunate inmates demands, but also by the rates of mortality, which we learn will compare favorably with that beyond its walls, being according to its last report but $1\frac{1}{16}$ per centum.

Where so much is admirable, it is with reluctance that they venture to make objections or call attention to what they think will be improvement. But regarding, with the Superintendent and the Surgeon, as stated in their reports for the year ending 1882, the hospital defective, they would call your attention to that point. The hospital building is an old wooden one, partially decayed, repaired over and over again in patches, and should be replaced with one with more capacity and with the arrangements, conveniences, apparatus, etc., with which modern hospitals are supplied. It is unseemly in appearance and detracts from the otherwise finish of the other portions of the establishment. It is totally unfit for its purpose, and should an epidemic occur or a large number of the convicts meet with an accident, or become simultaneously sick, its unsuitability will be very seriously felt. As it now is, the patients are exposed to the draughts, and even blast, in windy weather from the numerous cracks and crevices which exist; and more particularly do they experience inconveniences and danger from this, as the sick come direct from a night passed in a close cell, and many from the comfortable and warmed manufacturing apartments or halls in which as operators they are engaged each day. We believe that some measure is in contemplation by the Board of Directors with the view of improvement in this direction. We earnestly urge its speedy fruition.

The Committee would also offer the suggestions that the stables and slaughter house be removed beyond the walls of the Penitentiary, and that in future no cattle be slaughtered within. That the green hides of the slaughtered cattle and the mass of bones cellected from them be also deposited elsewhere. As it now is, very many of the convicts are compelled in their visits to the privy to pass between the green hides hung in an open shed and the collection of bones, the fragments of whose softer organic material is undergoing a slow process of decomposition, offensive in its odor. Otherwise the Penitentiary is in an almost perfect condition, all the laws that sanitary science require being obeyed.

Your Committee would express their obligations to the officers of the institution, who extended to them so much attention, accompanying them for several hours throughout every portion of their large and responsible charge, explaining the minutiæ, not only of sanitary measures, but the causes which demanded them. And not only this, but the working of intricate mechanism of the manufactories, and stating the injurious influences and accidents which such work is apt to produce upon the operators. We are happy to say, however, that such injurious tendencies have so far proved but theoretic.

Your Committee also inspected and thoroughly examined the Lunatic Asylum of the State, going over the extensive buildings, grounds and farms. They were pleased to find every portion of this large charity in extreme cleanliness and order, and most, if not all, the recent improvements for the amusement, the comfort, the welfare and management introduced. The method of ventilation, by which the foul air and gases are wafted up in a shaft, just constructed, the diet, the furniture, the bedding and clothing, its water works and water supply, its plumbing, its washing, bathing and other apparatus, its laundry, the chambers, numerous dining rooms, halls for religious services and public entertainments, are each most admirable in kind. Its offices and farms are all that could be desired from a sanitary point of view, and your Committee can but congratulate the Superintendent, officers and Board of Regents upon the scientific arrangements existing and the economic manner in which its affairs in general are conducted.

Yet the Committee cannot but view with some suspicion the *contemplated* arrangements which they learn are about being made for the ultimate disposal of the night soil, sewerage, etc., of the institution. This essentially consists in a system of sewers, which are connected with "a main sewer which carries off all the discharges of the buildings and premises, of water closets, bath rooms, kitchen sinks, laundry, &c., debouching at a point under the hill in rear of the new Asylum," but at some little distance from it. "From this point it is proposed in some way to utilize the large amount of sewerage, but how exactly it shall be

done has not yet been settled in detail. It is probable that a receiving tank will be so arranged that the discharges of the sewer may in Winter be filtered through straw or leaves from the woods, and in Summer or at any time desired be carried in troughs or pipes across the bottoms to higher and poorer lands beyond, and then be distributed both for irrigation and fertilization. How to arrange all this so as to secure the best sanitary and economical results will be a matter of careful study" and scientific and professional advice. It is in the feature of sewerage irrigation that your Committee is specially interested. At the termination of the troughs or pipes small furrows or trenches in the surface of the soil will be made, and it is proposed to cover over these furrows when filled. Experience can alone determine the sanitary results of this experiment. Yet your Committee cannot but realize that, under certain circumstances, danger may accrue. At present there would seem to be, as it were, a tidal wave of fevers, malarial, typhoid, etc., sweeping over the States, more especially the Northern and Middle States, which is gradually extending downwards to us, and the residents of this should be extremely cautious that nothing should insidiously or undetectedly creep into it which may invite an invasion or extension of such epidemics. Your Committee is, however, assured that this danger is foreseen and that the proper precautions will be taken to avoid it. At this time the sewage, etc., flows through the sewer to the farm, thence by a ditch to a small creek, which itself empties into the river.

Your Committee would here also make their thankful acknowledgments to the Superintendent and officers of the Asylum for their attention during the inspection of this extensive institution. Such inspections and examinations are always laborious. Yet the officer who accompanied your Committee devoted several hours to them, and entered into the most minute explanation and exposition of the details of this elaborate and humane refuge of the unfortunate.

The concurrent circumstances known and recognized by your Board have prevented the Committee from making the annual inspection of the Deaf and Dumb Asylum near Spartanburg, but they hope they may be able to perform this duty at an early day.

J. FORD PRIOLEAU, M. D.
Chairman.

Report of the Standing Committee on the Sanitary Regulation of Schools.

By C. R. TABER, M. D., of Fort Motte, S. C., Chairman Committee.

The Committee instructed to report to your honorable body upon the sanitation of schools begs respectfully to submit for your consideration the following observations and reflections:

We regret to encounter upon the very threshold of the subject the unpleasant fact that "school sanitation," except in a very limited sense, does not exist within the confines of our State. This arises probably from a want of knowledge of its laws, an hereditary conservatism which naturally opposes every innovation, and from the fact that we are a people pre-eminently anxious for immediate results in our enterprises; but even with the few who are conversant with sanitation the troublesome and expensive changes which a practical adoption of its laws would entail seems to paralyze all effort, nor is it certain that our educators, our legislators or our people are prepared to believe in the great manifold blessings which experience has amply taught to follow in the wake of a strict observance of "sanitary law."

In making this assertion, we shrink from any intentional reflection upon our beloved State, which from her Ossa-on-Pelion-like burdens stands throbbing with splendid impulses, nor would we strip a single leaf, well earned and honorable, from the brows of our earnest and noble champions in the cause of education.

But education in the ordinary acceptation of the term is one thing, and education proceeding in accord with and by the light of a comprehensive sanitation is another. The one is simply the germ, with its capacities and tendencies; the other is the real measure of its progression and supplies the laws which govern the process of healthy and symmetrical development, mentally, physically and morally. It is not enough that schools abound—that improved theories and methods of instruction be adopted, and that the school in its general equipment be perfect, thus affording every facility for reaping an intellectual harvest. For it is possible to have all these and yet ordinary sanitation be disregarded and the real end of education be defeated. Something more is needed, the very germ of which receives its impulse within the school house. The absence of this creates a need which is felt world-wide—in continental Europe, in Great Britain and in America; capital feels the absence of it and cries for

protection against the ever threatening dangers of ignorance and violence; and labor, with horned hand and sweated brow, groans for that indescribable something which will one day lift her above the oppressions of capital. And even in the various "isms" by which society is agitated, and in the distorted philosophies which disintegrate healthy thought, there is a painful absence of this great need. What, then, is this need of our enlightened and progressive day? Comprehensively, it is the want of a better developed, more carefully disciplined and aggressive moral sense. A more absolute and more extended appreciation of "*meum*" and "*tuum*," and a greater emphasis stamped upon the full meaning of that old Saxon word, worth. Worth in childhood and in youth; worth in manhood and in womanhood; worth in the citizen and in the heads of government—that the greatest possible degree of peace, prosperity and happiness may be insured to the greatest numbers.

That human effort can accomplish much in supplying this deeply felt want does not seem improbable, and from this conviction in the minds of men and as a collateral aiding power has come the great science of hygiene, leaping forth, Minerva-like, from the brain of Jupiter. Though her advent is but yesterday, the world already feels the purity and grandeur of her mission. In contemplating the vast scope of sanitary science, we cannot fail to perceive that her noblest feature is that which essays to leave her indelible impress upon education—to give health and strength to the body, health and strength to the mind, and to the very soul itself—the centre of all high moral purpose. A comprehensive school hygiene demands more, promises more than anything else for the amelioration of mankind. But it is impotent without liberal encouragement—yes, without the generous fostering care of government; for without this it cannot plume its broad and balmy wings for its legitimate flight. Nor are its blessings gratuitous, but are to be secured and enjoyed only through the best directive efforts of human intellect and by the liberal outlay of capital. Sanitation recites the horrid catalogues of crimes and with melancholy warnings tells us how much better to strive to prevent them than to correct them. She estimates the various evil influences which begin to undermine human nature from its very birth and recognizes the vast numbers of human creatures who arrive at maturity and in whose moral distortion are found full-mouthed expression of the unpardonable indifference of their guardians, the folly and neglect of their past lives. Then, besides, she points the finger admonishly at that forlorn class, "the weeds and tares" of social life, springing up voluntarily in the absence of all teaching and of even the examples of good, brutalized by necessity, and, having counted the cost and indicated the dangers, sanitation would have us seek the remedy through education—through our schools—operating in obedience to its laws, tak-

ing the little urchin and the little girl, and in a scientific, legitimate and successful way giving them the best physical, intellectual and moral training.

Many years ago it was said by the great Gladstone of England that the school teacher should educate the morals as well as the minds. What does this idea breath but the key note of the school sanitation? and does it not stand forth like the great light of Stromboli, glazing steadily upon the restless waves of educational systems? We perhaps, with an hereditary conception of what constitutes successful education, and not yet having escaped the influences of a peculiar and forever lost phase of civilization, may not be prepared to accept the *dictum* of England's great statesman in all its full length and breadth of meaning, or, if we are, we are not ready to enforce it practically; yet it is the very essence of sanitary education, the most rational, comprehensive and useful. It is the system having the best possible government as its *ultimatum*, and it points to the real educator with his weighty responsibilities as the exceptional man for an exceptional purpose—as a great mean to the greatest end. To claim that there should ever exist an excuse for disregard of any factor which may be utilized in accomplishing this great purpose does violence to reason, and it is indeed a policy short-sighted and dangerous which concerns itself with the present only; and real wisdom in legislation as in everything else should be anticipative, and while addressing itself to existing conditions should endeavor to estimate and to grasp the greatest number of possibilities of the future. To be at rest because apparently the machinery of a people's every day life works smoothly and satisfactorily, is wrong. Every part of it should be watched critically to minimize the chances of dangerous accident, which time and experience prove to occur despite our best directed efforts. When the disaster has passed and cold reason begins to speculate and to trace effects back to causes, then is the painful discovery made of what caused it and what could have averted it. If we examine closely the feeling of our State as we find her to-day, we can safely outline it as follows: The masses are secure in their conscious power; but the educated, thinking class suffer a state of dissatisfied unrest. The political horizon is not yet clear; the fulsome promise of that worst excresence of society, the professional politician, is generally kept just in so far as it can conserve his own interests and no more. The thinking man, the liberal man, feels that North, South, East and West, clear down among the fundamental principles of life, human nature is the same. That Democracy does not mean virtue, nor does Republicanism mean crime. That the best government is not to be perpetuated by any particular party, but it must come through the greatest amount of education and virtue; for parties are ephemeral —they rise, subserve their purpose and disappear,—and from

their ruin spring other parties, organized perhaps with a larger proportion of ambition, folly and vice, or upon an improved basis, having profited by experience, having eliminated many of its ruinous factors.

In our social system stands, on the one hand, an element, constituting largely the majority of our white population, ignorant, illiberal, and with just that kind and degree of mental and moral make-up to constitute them the easy prey to their passions and prejudices or to become powerful tools for evil in the hands of ambitious and unscrupulous men. Against capital, whether represented by the individual or the corporation, their jealousy, their envy, is intense, and even against the large land owners so confirmed are these unfortunate feelings that, in the face of every idea of right, they would have land become common property. On the other hand, stands the negro race, wedded to his superstitions, ignorant, disappointed and sick at heart by his political experience, but secretly firm in the desire to be considered a power in our State. His predilections are for the educated class, in which he recognizes his best protectors and in comparison with which he deeply feels his vast inferiority. Yet even these he dare not trust. Against the uneducated poorer classes the negro cherishes a contemptuous dislike, which he finds most fully and thoroughly reciprocated, nor would it require any extraordinary incentive to array them in hostility against each other. In the great problem, the solution of which must certainly come at no distant day, the question is persistently presented, of how these antagonistic elements are to be reconciled, and by whom?

What concession it may become necessary to make and in whose favor? What privileges the law may be forced to curtail or take away entirely? What is the training of our children, and whether it is of such a character as to prepare them to meet the great issue and to guide it successfully? The earnest, thinking man does not wish to be fettered and ruled for the sake of party. He is tired of this and wants justice and right to prevail. He longs to see better lives lived on all sides, a more catholic spirit in everything, a broader policy based upon education and morals, for without these the people's welfare is indeed held by very feeble tenure. Is it extravagant to say that to sanitary education we must look to supply very largely the means of purifying, strengthening and perpetuating our political and moral systems? Let us educate, but in a healthy, rational way. Educate to give human character tone and dignity by fixing in it the invaluable wholesome truths of virtue. If the absence of this in the past has created unrest in the present and evil forebodings in the future, open up a prospect of relief. Fast upon the heels of one generation comes another, then another, and so on to the end; and if sanitation, which should govern every feature of an individual's and a people's life, be comprehensively construed and enforced, it cannot fail in its re-

sults to be a blessing to our whole State, for what is the State but an expression of the aggregated characteristics of her people and the most insignificant of whom is not wholly without some influence? Nations have already been directed by a specific form of education. Lycurgus educated for this, so did Mahomet, likewise the Church of Rome. A later civilization, however, has been content to educate the individual for himself alone; but who can say that at some future time other nations might not find it necessary that they themselves should be content to be educated for a specific purpose?

The vocation of teacher, with these lofty aims in view, is unquestionably the most responsible, the most necessary and the noblest. It should comprehend the whole being, mental, moral and physical. The consensus of mankind should force the teacher to aspire to the grand ends which he is expected to achieve, and he should be held largely responsible for fashioning the plasticity of youth into the best possible shapes by instilling a principle here, by checking a tendency there, by faithful teaching and by the ever present example in himself of those qualities he would have initiated. And who not? The teacher has more to do with the pupil than the parent. Deducting ten hours for sleep, and six hours for schooling, we have eight hours left to be consumed in the ordinary home pastimes and duties, all which, though taking place at home, to a very considerable extent keep him beyond the active influence and control of the parent. Meantime the parents, constantly occupied with their special duties and pleasures, are themselves kept away from their children, thus making their influence of a passive, negative character. Furthermore, numbers of children, by the unfortunate circumstance of their lives, must find all their moral teaching in the school room or go without. The jurisdiction of the school teacher, unlike that of all other persons, is absolute and continuous through years. He has the most abundant opportunity of acquiring a knowledge of the distinctive peculiarities of his pupil, and his facilities are great for fashioning them as he may wish. Nations are gathered out of nurseries, and the tiniest bits of opinion sown in the minds of children issue forth to the world and become its public opinion. In contemplating this picture of the somewhat ideal school teacher, we are painfully reminded of a less attractive one of the average school teacher as we find him here and there through our State. With a smattering of languages, mathematics and English branches, and with a shocking unconsciousness of the spirit with which he should approach his duties, teaching not from choice but simply for bread. In many instances, untidy in person, careless and ungrammatical in language, irritable, unjust, or, perhaps, criminally lenient, and occasionally in morals a bankrupt.

Or perhaps the teacher is an unhealthy member of the other sex,

with every accomplishment, and struggling nobly; yet the cruel pressure of her life has made her suspicious, hysterical, and, unfortunately, the sport of her whims and caprices. She sees the right and endeavors to cleave to it, but all she accomplishes is absolute failure. In both instances lessons are studied and recited, and in both instances much is also taught which had better not been learned, and the efforts in after life to overcome these earlier teachings and the host of moral distortions floating hither and thither upon the social surface tell a tale sad and bitter in its significance.

To assert that this picture is overdrawn would appear equivalent to a confession of ignorance or of the most rudimentary powers of observation. Of course, in cities, in large towns, and occasionally in rural districts, we find brilliant exceptions to this rule. It would be simply extraordinary if they did not exist. If it be said that our teachers are the best to be had under the circumstances, pray let us ask, What are these circumstances? Do we not, in the education of our children, make the question of economy of paramount importance? And are we not culpably careless as to the character and not the reputation of the teacher? And do we not, as a rule, fail to see our children as others see them? and does not each parent think that never mind how vicious are the children of other men his are golden exceptions? Alas! how often in after life are our eyes suddenly opened beneath the painful pressure of bitter and useless tears!

Suppose that ten instead of thirty be considered the greatest number of pupils one man can teach successfully. That their natures are to be studied critically, their minds and bodies cultivated and strengthened, and everything in the way of precept and example done to insure the best development of the moral sense, the avowed object of the teacher being to lay the foundation of the best possible citizen. Suppose, too, that the teacher is fully alive to the great necessity of his work, the successful performance of which society demands, and that in return for his outlay of time, labor and effort he receives corresponding remuneration in money, in emoluments and in honors,—think you much would not be accomplished? Suppose a thousand schools scattered throughout our State, having the same aims, conducted upon the same system and with teachers of unquestionable proficiency,—would no great advantages result?

There is no calculating what can be accomplished by any system concertedly and persistently pressed, even in violation of right. How greater then are its chances of success when it proceeds upon the loftiest plane to the enhancement of human virtue and happiness. Now we do believe, in education as in everything else, that a necessity deeply felt by a people will create a demand, and the supply will certainly follow, and,

also, that any system of education which does not assume the responsibility of the child in its entirety and is conducted in opposition to the laws of a comprehensive sanitation is, in the end, the most expensive to the individual and to the State. Americans are said to be, of all nations, the most nervous, and it results from our "high pressure" life. South Carolina, therefore, must bear her portion of this unfortunate reproach. Nations of older civilization have gradually simmered into a willingness to go through life at a moderate and rational gait; they have neither our intense love for speculation and enterprise, nor our craving to be worth a "million a minute." Although it seems customary for us to deprecate those older forms of government wherein men are not born "free and equal," still there is no question about their having counterbalancing advantages, the non-existence of which here in America is prolific with evil. Confessedly our high pressure life has already told heavily upon our organizations, and each generation is becoming less able to endure the fatigues of its predecessor. The power of digestion has failed to a very considerable extent, and we cannot sustain ourselves upon the strong, healthy fare of our hardier ancestors. As a people we are becoming dainty, and, although possessing more refined and cultivated tendencies than formerly, we don't give them wholesome practical direction. Even in our commercial life, it is very questionable whether the American, with his long hours of activity, accomplishes as much as the Englishman with his shorter hours and abundant relaxation. The effect of this system of "burning life at both ends" is not confined to the merchant alone, but is distributed throughout every walk of life. Ultimately the persistent pursuance of this system cannot fail to produce degeneracy. Few men can stand more than five or six hours of original work daily, yet, under good circumstances, as to air, light and temperature, a longer period of time can be devoted without detriment to ordinary routine work. Even this, however, has its limit, to trespass beyond which means ill health.

There is no class of persons who struggle under greater disadvantages than the school teacher. As a rule he is trained, by his vocation, to the evils of a sedentary life, which develops great obstacles to his acquiring and maintaining physical robustness, for there exists almost an impossibility of finding for them proper relaxation. Work becomes the habit of his mind, and soon he loses interest in everything else but work. Even during holiday we see him trying to teach somebody, and, by reason of the heaviness with which time hangs on his hands, we find him impatient to resume his educational duties. This is exemplified by the custom so common with the teacher of giving instruction to pupils in the afternoon and at night. It seems natural to suppose that upon a cessation of the ordinary daily exercises, the teacher, rejoicing in his sense of freedom,

would readily abandon himself to pleasant recreation; such, however, is not the case. Upon the closure of his school door, he feels that "Othello's occupation is lost," and the ever present responsibilities of his vocation, with its petty annoyances and the unavoidable conflicts with stupidity and obstinacy, keep the mind so completely centered on the events of the past day as to actually unfit him for healthy exercise. Mark the school teacher where you will, whether singly on his Summer tour, or collectively in a convention, and in his pale and furrowed face we read the evils of his vocation. Sooner or later he becomes a dyspeptic, and in the derangement of his gastronomic apparatus he goes about creating the startling impression that he has swallowed a miniature brass band, or, overtaken by nervous prostration, his "shadow grows beautifully less" and he retires from the scene a confirmed invalid. If, in discharge of his duties as school teacher, the male representative encounters so many evils, all of which arise from a violation of sanitary laws, how many more are encountered when woman becomes the educator? Having, in common with the male, the same impress of our "high pressure life" stamped upon her constitution, she is more feebly and nervously organized and with less powers of endurance. In addition to this she has those disadvantages which certain distinctive physical peculiarities entail upon her, causing her to feel ten-fold the burden, the strain, of her trying duties. From a sense of duty, or from ambition, she is ever ready to exhibit extraordinary powers of will, too often, however, to her great detriment, and it is exceptional, when her health once begins to decline, under the harassing duties of school teacher, that she is ever totally restored. Her friends and the world may not understand or appreciate the character or extent of her physical injury—for she does not complain, and to bear with heroic patience and in silence seems her exclusive prerogative. A time comes, however, when her old family physician, with sympathetic heart and eager ear, drinks in the sad story of her struggle—of her fortitude, of her gradual decline of health, step by step,—and in her wreck he recognizes how continuously and persistently her life has been squandered by an absolute violation of sanitary law.

These are the exceptional cases—not rare, however, but so frequently occurring as to establish the rule and to make us desire to surround them with all the safeguards which school sanitation affords. Old fashion practices and false ideas, in so far as they assist in prejudicing the health and welfare of our teachers, should be persistently ignored, and the effort should be to fit the burden to the shoulders. Extend the period of the child's education through a greater number of years if necessary, and decrease the daily work of the teacher, that he may keep his health and strength, the better to teach and to maintain those for whom he toils. Do away with the inhuman idea so prevalent, not among the masses only,

but ofttimes among the educated, that because a teacher receives pay for his services, therefore they should be rendered day after day, month after month, year after year, through sickness and other disasters, with the fidelity and precision of an old mill horse, and if perchance disabled by the fatiguing details of his multiform duties, then grumble about his willful negligence, and, in the spirit of the inelegant language of the ring, cry out, "another horse!" Parents should no longer pay that splendid tribute to the intelligence of their children and to the capacity of the teacher by believing it necessary that the latter should hammer at the former for at least six or eight hours daily; that unless this be done the youthful minds will speedily go to weed. School sanitation proclaims that such ideas when practically enforced do gross violence to common sense and experience, and, to both teacher and pupil, cannot result otherwise than ruinously.

As germane to the effect upon the teacher of the non-observance of sanitary law arises another of like character and of equal importance, since it concerns the welfare of the pupil. We cannot resist the impulse to comment somewhat upon the duration of time custom forces the teacher to exact from the pupil in his application to his studies. In many of our schools, especially in rural districts, both free and private, we find somewhat this following condition existing: In improperly constructed buildings, badly located, imperfectly ventilated, with light and heat injudiciously distributed, we find assembled children of various sizes, ages, dispositions and hereditary antecedents. Occasionally the seats and desks are arranged with an eye to comfort. But as only one eye has been apparently utilized, we may ascribe to this fact the extreme irregularity of the accommodations. Upon the same long, old-fashioned bench sit with equal discomfort the larger boy with his greater length of legs, which necessity has taught him to double up most inartistically, and the chubby little urchin whose feet high above the floor dangle uncomfortably. Save with an occasional change of position for purposes of recitation and the ordinary recess, the school sits painfully squirming for about six hours daily. Very rarely (and we would not be understood as recording it regretfully) we find a teacher so wonderfully enterprising as to give the same set of scholars, in the same school house and under the same delightful conditions, the benefit of an extra afternoon session. Nor does this great boon to the scholars ever fail to elicit for the teacher the heartfelt encomiums of the parents. We are willing to admit that to a child in good health mental application, within certain bounds, however, is both pleasant and wholesome; but beyond this is the point of fatigue, and in accordance with a well established physiological law, applicable equally to the mental and nervous system, we find that effort in excess of power adds nothing to the results achieved.

In acknowledgment of the correctness of this law, the endeavor has been to arrive at an approximate standard of time during which children of different ages can be safely kept at their books. Chadwick of England furnishes the following table for guidance as to the amount of mental application each age can safely endure:

Below the age of twelve, four hours; below ten, three and a half; below seven, two and a half.

Then, again, the time during which children of different ages can concentrate their attention upon one particular subject is as follows: From twelve to sixteen, or eighteen, the period of application would be thirty minutes; from twelve to ten, about twenty-five minutes; from ten to seven, about twenty minutes; from seven to five, not more than ten or fifteen minutes. Upon this formula, and upon the recognized and invariable characteristics of childhood, with its imperfectly developed brain, its feeble power of concentration, and by its inability to perform much continuous work without injury, has arisen what is known as the "half time system" so successfully practiced in England and in America. The discovery was made that children taught half the ordinary hours daily, and then dismissed to recreate or to work, advanced in their studies just as rapidly and as thoroughly as did children who were taught the full complement of hours. This system possesses striking features eminently at variance with the ordinary opinions on the subject, and recommends itself not only on the score of its extreme healthfulness but on that of economy. For why pay for six hours' tuition daily when three only are necessary? Besides, in rural districts the "half time system" enables the pupil to devote a large part of his time to farm work or to the acquisition of some useful trade. These are simply facts. We propose, however, to the tragic fate of Jerome and Huss, and, notwithstanding the inviting features of the "half time system," we will not urge its adoption in our State. The fact is, with our children there is no such period as childhood; they are born men and women. Our whole effort is to ignore the natural healthy impulses of happy childhood and to cram our children with a wide range of superficial knowledge, the sooner to rush them through the bustling arena of life. In other words, we hasten to burden our children with those heavy cares and responsibilities under which the best and strongest too often totter and fall. The greater strength of the boy enables him better than the girl to bear up under the injurious pressure of our present injurious system of school education. With the latter, from the age of twelve and onward, her growth is very rapid, and coincidentally there is being developed the most critical physical event in her life. Bodily growth in this double sense, and the moral development which should go hand in hand, constitute, during this formative period of the girl's life, the most

important functions of her existence. At twelve the strain upon her economy has begun, and is already weighty enough, and perhaps replete with tendencies unseen yet dangerous. To tax her powers in any way is simply cruel. Yet it is the every day practice, which unfortunately fails to receive condemnation, except from the medical profession, all of whom are in accord upon this important subject.

At the North the baneful effects of an erroneous system of education have so thoroughly undermined the health of the school girl, and so rare is perfect health to be found among the women of the better classes, that some of the most eminent physicians go so far as to advise that the education of the girl be partly discontinued until she has attained her fifteenth or sixteenth year, after which time her physical powers will begin to reassemble with renewed vigor and enable her to prosecute judiciously her studies and accomplishments.

We cannot refrain from indulging the delightful hope that at a near day parents will appreciate the full significance of the wise and wholesome suggestions of sanitation, and, since by following them the chances of insuring the highest education to the children are not diminished, they may consent to be governed by a higher charity, a deeper love, towards their offspring, and thus spare them the injury too often begotten by false ambition or by the cruel requirements of society.

There is another great evil for which the disregard of school sanitation is largely responsible. It is the infirmity of "near-sightedness." However lightly this defect of vision may be regarded by some, it is nevertheless a great and permanent affliction. It places the individual at great disadvantage in the conflict of life. It is an element of great discomfort, of inconvenience, and of insecurity to him, and bars against him the doors which to others blessed with perfect vision open wide to various occupations, lucrative and honorable. If in the accomplishment of this great defect of vision the individual were somewhat accessory, then perhaps the reflections upon his painful condition might not altogether be devoid of some comfort. Far different should it be when he feels that the beauty of the world has been comparatively shut out from him by the hands of another, and at a time when himself a child, a passive instrument in the hands of others, who made no effort to provide him against those injurious influences, and, furthermore, that it does not end with him and may be inevitably entailed upon his offspring.

It does not appear that the knowledge of these facts would be eminently calculated to awaken in the mind of the victim of near-sightedness such reflections as would best harmonize with the angelic precepts of the Christian faith; and since human nature, having in common certain fundamental characteristics and is everywhere the same, we have failed to

discover that reason, whether expressed in religion or in philosophy, has ever essayed to inculcate reverence for those who have deliberately, wantonly and systematically inflicted injury. Yet all schools conducted in violation of sanitary law do inflict just such injuries to the human eye, and, strange to say, for the exercise of this great privilege no deduction whatever is made in the tuition. If the accusation is denied, we have only to point to the wholesale existence of utter indifference to ventilation, to the arrangement and distribution of heat and of light, and, in fact, to those numerous sanitary requirements the non-fulfillment of which tend to and do actually destroy constitutional vigor and finds its most powerful expression in the destructive power upon the organs of sight. The increase of non-sanitary education and of "near-sightedness" observe toward each other a corresponding ratio—pre-eminently so in the older countries across the water and eminently so in certain sections of the United States. Education no more means "near-sightedness" as one of its conditions than jumping out of a window means a broken leg. It is the way we educate and the way we jump that makes the difference between injury and non-injury. This question of "near-sightedness" as produced by disregard of sanitation in our schools is replete with interest, and, in fact, is of national importance.

Much more can be said upon the importance of school sanitation, but, having endeavored to emphasize a few of its principal features, we shall leave the matter to be considered more fully by others. We, however, cannot refrain from expressing regret that the leading men especially of our State have not paid more attention to the study of sanitation. Just here the amusing recollection steals over us of how curiously affected seems an honorable member of a former Legislature to whom we had the pleasure of speaking upon this subject. Nor can we ever forget how that gentleman seemed to be suddenly plunged into an unexplored region of thought—a sort of Central Africa, mysteriously awful,—and with what extraordinary assiduity he applied himself to his "pindars." Our best wishes for him, under the circumstances, was a regular old-fashion attack of "cholera morbus" and no physician within twenty miles.

Fortunately the success of sanitation does not depend upon this "typical man," representing, as he does, a class stupidly averse to everything which savors of advancement and painfully loud-mouthed with its narrow criticisms. Elsewhere in more than thirty States of our Union the question of sanitation is being generously considered, and men, feeling profoundly the material advantages which accrue to the State from observance of its laws, willingly aid in their adoption. For so doing they do not experiment, but simply encourage a phase of legislation which experience is fast teaching to be a necessity.